VOLUME XV MARCH, 1915 NUMBER 3

THE AMERICAN MUSEUM JOURNAL

AMERICAN INDIAN DANCES
STEFÁNSSON IN THE ARCTIC
JOHN MUIR
ROOSEVELT'S GEOGRAPHICAL WORK

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The American Museum of Natural History

THE AMERICAN MUSEUM JOURNAL

VOLUME XV MARCH, 1915 NUMBER 3

MARY CYNTHIA DICKERSON, *Editor*

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The Journal is sent free to all members of the Museum.

Photo by DeWard, New York

MR. WILL S. TAYLOR, MURAL ARTIST

Mr. Taylor is at present engaged on the great mural canvases in the North Pacific hall of the American Museum. These decorations are painted to show the industries and ceremonies of the Indians of the North Pacific Coast.

[See reproduction in sepia of a photograph of one of Mr. Taylor's recent canvases opposite page 104]

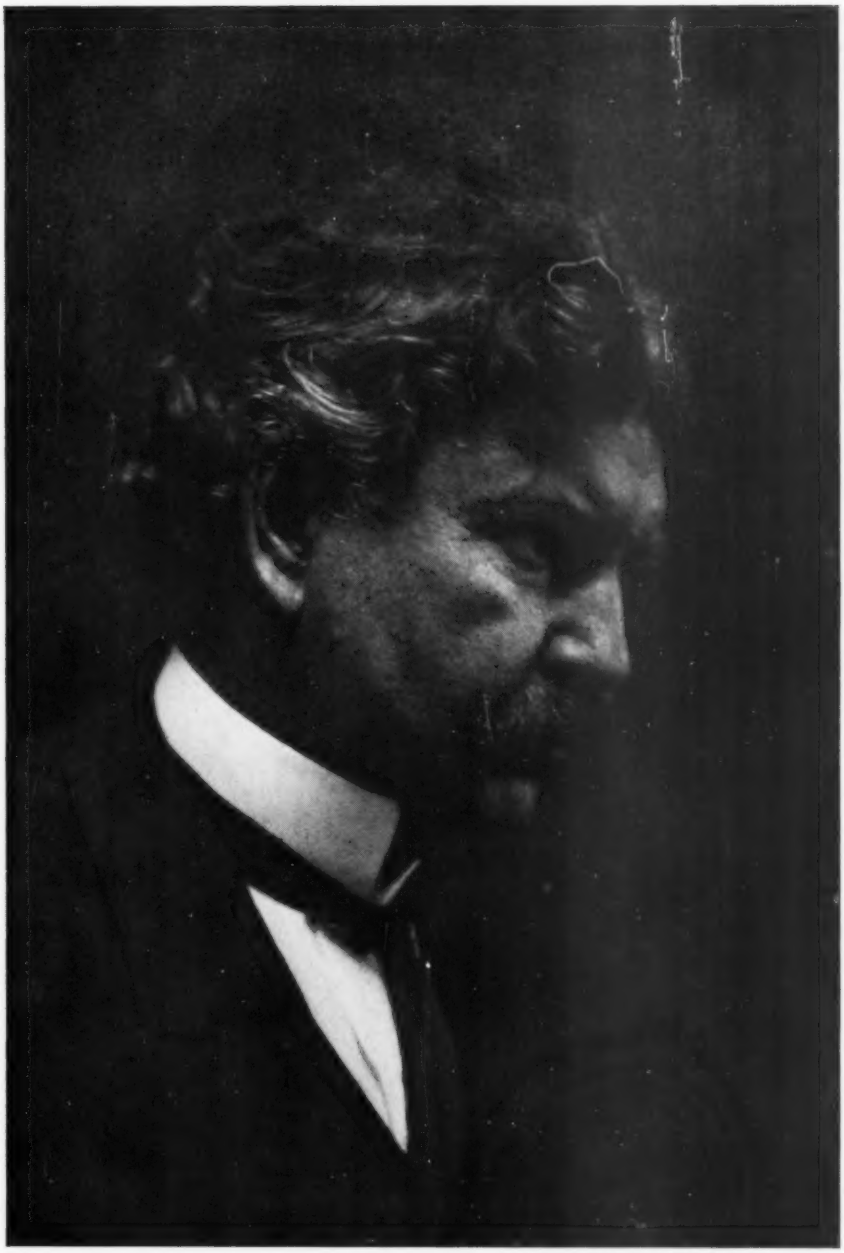

Photo by DeWard, New York

MR. E. W DEMING, THE MAN WHO HAS FOR MANY YEARS PAINTED THE AMERICAN INDIAN WITH GENIUS AND POWER

Mr. Deming has recently been engaged to provide mural decorations for one of the Indian halls of the American Museum

Photo by Harris and Ewing, Washington

REAR-ADMIRAL ROBERT E. PEARY

On February 20, a lecture on "Children of the Ice and Snow" was delivered by Rear-Admiral Peary before the children of the members of the American Museum. This was the opening lecture of the Museum's fifth series of "Science Stories" for children

Photo by Thomson, London

SIR DOUGLAS MAWSON

Sir Douglas Mawson has returned from the Australasian Antarctic expedition, 1911–14, with a story of much accomplished for science, despite hardship and disaster

His pictures, both still and moving, are some of the most remarkable ever taken in polar regions. He lectured recently in New York under the auspices of the American Geographical Society and the American Museum of Natural History

Copyright photo by E. S. Curtis

COSTUMES OF INDIAN DANCERS IN BRITISH COLUMBIA

A group of various ceremonial dancers, showing representations of such animals as ravens and frogs, the bear, goat and sea-lion. The Museum owns a large collection of masks from the Northwest Coast

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AMERICAN INDIAN DANCES

THE INDIAN DANCE OFTEN A PRAYER BY THE TRIBE TO THE GODS OF THE HARVEST, OF WAR OR THE CHASE — USUALLY IN CONTRAST WITH PLEASURE-SEEKING, SENSUAL DANCING AS KNOWN AMONG CIVILIZED RACES

By Robert H. Lowie

THE word "dance," as applied by the Indians has a meaning very different from that which it carries in our own language. When we hear of dancing, we think, first of all, of music and steps. These features are of course not lacking in aboriginal dancing, but they are completely overshadowed by other aspects of culture with which they are associated. To put it briefly, our dancing appears in the same context with restaurants, hotels, débutantes, attempts at a social rapprochement of the sexes. In Indian society, dancing is largely connected with war and agriculture and the chase, with processions, magical performances and religious observances, in short, with the serious affairs of life.

Indian dances as far as the steps are concerned are often of remarkable simplicity. A widespread "squaw dance" found among the Shoshone, Crow and other northwestern tribes, consists simply in the circle of dancers shuffling the feet alternately to the left, each man in the circle standing between two women, with his right arm around his partner's shoulder or waist, or in some cases with arms encircling a partner on each side. With short intermissions and an occasional introduction of the war dance for variety's sake, a squaw dance of this type is sometimes kept up all night, to the supreme gratification of the performers.

The Tobacco Dance of the Crow Indians, is, if possible, of even simpler character. The participants stand up several in a row, holding sacred objects in their hands, and alternately bend each knee and raise or lower each band without at all moving from their position. The highly popular Grass Dance of the Plains Indians is of a more strenuous character. Only men take part, and they move about briskly, sometimes in

pairs, sometimes separately, vigorously stamping the ground with their feet, and frequently mimicking martial exploits.

The orchestral equipment of the Indians is not very comprehensive. The flute (or flageolet) is restricted to use in courting. For dancing, the drum and the rattle are by far the most important instruments, although other types were used over a relatively large area; this applies, for example, to notched sticks rasped with other sticks and bird-bone whistles, usually worn suspended from the neck. The drum varies considerably in form. On the Northwest Coast the natives merely beat a plank or box. The Plains Indians commonly use a skin stretched over a hoop, held by strings crossing underneath, but a large double-headed drum suspended from four sticks also occurs. Rattles are likewise of widely varying kind, such as gourds containing small pebbles and ring-shaped or globular rawhide bags — for which in the dance of to-day baking powder cans make favorite substitutes. Sometimes a certain instrument is considered distinctive of a particular dance or of a society performing the dance, and various forms of costume are also considered badges. Thus dress comes to occupy in the Indian dance a place of significance to which there is no correspondence in the dances of civilized races. Sometimes, to be sure, the apparel merely is designed to give an appearance of picturesqueness, while in other instances lack of clothing is sometimes compensated for by face and body paint or by a profusion of regalia held in the hand. In a Northern Blackfoot Grass Dance which I witnessed in 1907, some performers were naked save for moccasins and a breechcloth, but many carried ornamental objects such as mirrors, swords, and feathered and hooked staffs. When dances are the property of special organizations, as is often the case, there is naturally a tendency to differentiate between these by some visible token of dress or regalia. Thus the members of one Arapaho dancing society are marked off from the rest by wearing a headdress of buffalo skin; in another society every one wears feathers at the back of the head; a third is characterized by the carrying of clubs. Similarly where a single organization has several officers there is again a natural attempt to distinguish them through some external means. Thus a leader in the dance may carry an otter-wrapped pole, while the privates of the rank and file have none.

The Crow Grass Dance might be chosen as an example of the social type of Indian dance, the Pawnee Iruska and the Mandan Buffalo Women's dances as representatives of shamanistic or religious performances, while the Mandan Okipa illustrates well the great tribal festival type of dance.

The Crow Grass Dance, or as the natives call it the "Hot Dance," is regarded as the joint property of four clubs, to some one of which nearly every man of the tribe belongs. In a sense these are mutual benefit organizations, for whenever a member is confronted with a difficulty his comrades are expected to help him in every way. In each of the districts of the Crow Reservation, these four societies share with one another a substantial dance house. When the time for dancing comes, a committee of men proceeds from lodge to lodge, planting a stick in front of each. This means that each household is to contribute to a feast to be held by the clubs after their dance. A crier rides through camp heralding the performance and calling on all members to present themselves at the dance house. On one occasion I have known four marshals to be appointed to punish the

laggards; those who had disobeyed the summons either had to pay a fine or submit to the indignity of being thrown into the creek. In the meantime, the people assemble until the dance house is charged to its utmost capacity. Then the musicians, seated in the center around a big drum, strike up a tune, later reinforced by the voices of some of the women, and the members of some one of the four societies rise to perform the vigorous turns and bendings characteristic of the dance. They give vent to penetrating cries in rapid succession, they brandish weapons at an imaginary foe, and thus proceed around the lodge until the ceasing of music makes them come to a sudden stop.

Photo by E. W. Deming

Two figures from a performance of the Grass Dance twenty-six years ago when Sitting Bull was still alive

While the dancers rest from their exertions, some Crow eager to enhance his social prestige may decide to give away a horse. He comes riding in through the door (he has to bend low not to bump his head), the horse may balk or shy at the unexpected spectacle indoors and the noisy crowd, but the rider proceeds to go around the dance circle four times, whereupon a herald announces whom the donor desires to honor with the gift. It may be a Sioux visitor or some poor old man or woman from the clan of the donor's father. In the latter case the receiver of the horse leads it away singing as he leaves the dance house, a song in praise of his benefactor. Meanwhile the music recommences and the members of a second of the four clubs begin to dance in accompaniment. Any members who are loth to rise and perform this part are whipped into dancing by an officer armed with a quirt for this purpose.

All sorts of minor incidents may enliven the scene. On one occasion when I was a spectator while the Hot Dance was being performed, a group of boys came dashing through camp, painted with mud and disguised in clowns' costumes. They dismounted in front of the dance house, entered and to the extreme amusement of the onlookers, took part in the dance. At another

Photo by E. W. Deming

Grass Dance by Sioux Indians, just previous to the death of Sitting Bull, at Running Antelope's camp on Grand River, South Dakota. Some of the participants in the dance are Sitting Bull, Rain-in-the-Face, Chief Gaul, Chief Grass, Running Antelope, Red Tomahawk and Charging Thunder

Hot Dance which I witnessed, a man took off his clothing and gave it away to a guest. In former days this dance was made an occasion for men in a spirit of bravado to cast off their wives, often merely to show their strength of mind. The famous warriors of the tribe utilize the intermissions between dances to recite their great deeds, each exploit being greeted by a drumbeat, and each recital entailing on the narrator the obligation to give away some property. At a certain time visitors are warned to be off, for the door of the house is to be shut. Then the feast takes place — originally of dog meat. Thus ends the Grass or Hot Dance, a mixture of all sorts of merriment, self-advertisement, feasting and dancing.

A very different phase of dancing is presented by the Pawnee Iruska. The members of the society practicing this dance were supposed to be masters of fire, and their attitude toward it was to be like a Pawnee's attitude in facing the enemy. Spectators were invited to their gatherings, their songs were chanted and the members began to dance. After

the third set of songs had been sung, the attendants built a big fire and hung a kettle of water and dog meat (or buffalo) over it. The leader advanced to the kettle when it was full of boiling soup, plunged his arm into it and took out a piece of meat. All the other members followed suit and unscathed pulled out meat, for they had secured medicine power that enabled them to overcome the force of the fire. An evidently related ceremony occurs among other tribes. In the Hot Dance of the Mandan and Hidatsa, the performers not only executed the trick practiced by the Pawnee, but also danced with bare feet on glowing embers until they had stamped out the fire. This was likewise a usage of the Crazy Dancers of the Arapaho, who indulged in other queer antics, such as doing everything in reverse fashion and expressing the opposite of their intended meaning, thus lending to an otherwise solemn performance an aspect of buffoonery.

While the activities just described seem to have had no object beyond the exhibition of the performer's supernatural power, the dance of the Mandan Buffalo women's society was intimately connected with tribal welfare. Whenever the supply of buffalo had failed and the village was threatened with famine, the members of this organization were

Photo by Alden Deming

Scene from a social dance largely participated in by women. Photograph taken among the Blackfoot Indians, Montana, summer of 1914. The main properties necessary for the dance are the tall feather hats. The women in turn dance wearing these hats once around the camp ground until all have worn them in the dance. Usually a circle of wagons is formed when the dance takes place out of doors. A feast is always given in connection with the dance. The Museum collections are rich in dance costumes of the Blackfoot Indians

Photo by P. E. Goddard

Assiniboine Indians in a social dance near Battleford, Saskatchewan, 1912. The structure in which the dance takes place resembles that used for the Sun Dance, now discouraged if not forbidden by the Canadian government

From a painting by Catlin

SCENE FROM MANDAN INDIAN CEREMONY

The Mandan Okipa was a great several days' annual festival corresponding to the Sun Dance among other tribes. It commemorated the subsidence of the deluge as recorded in Indian mythology, and combined religious sacrifices and voluntary submission to torture with various dances and dramatic performances.

This halftone is from the original painting in the possession of the Museum

called upon to execute their dance in order to attract the herds. According to an early observer, they never failed for they simply never ceased dancing till buffalo had been sighted. Prince Maximilian of Wied-Neuwied gives a good first-hand account of a performance witnessed by him in the early thirties of the last century. There were two men acting as musicians, with rattles and drums, one of them holding a gun. The leader was an elderly woman wrapped in the skin of an albino buffalo cow. In her right arm she held a bundle of twigs, tipped with plumes, with an eagle wing and a drinking-vessel secured to the grip. There were seventeen women, all told, who took part. Two of them wore skunk-skin head bands, the rest wore headdresses of white buffalo skin, decorated in front with owl or raven feathers. All the dancers had vermilion paint on the left cheek and eye, with two blue spots on the opposite temple. They formed a circle, the musicians began to sing and the women danced, taking up the tune at the same time. They waddled like ducks from side to side, raising each foot alternately higher than the other but never shifting their position.

The Mandan Okipa represents again a wholly different type of dance. It was the great several days' annual festival that corresponded to the Sun Dance of neighboring peoples. Ostensibly it was a commemoration of the subsidence of the deluge recorded in native mythology, and some of the important characters of the myth were impersonated by performers. On the other hand, there was a great deal besides. A marked dramatic feature was supplied by numerous mummers representing animals and closely mimicking their peculiarities. Prominent among these were buffalo masqueraders who imitated the wallowing of the animals represented and whose actions were expected to entice the game to the village. Many tribesmen voluntarily submitted to torture: their breasts were pierced, skewers inserted, and they were then made to swing suspended from a pole as in the more familiar Sun Dance. Altogether the Okipa was evidently a composite ceremony. Religious sacrifices and prayers were mingled with dramatic performances, magical rites and activities of a purely social order; and there can be no doubt that to the average Mandan who had no special office in the performance, it served the purpose of a free spectacular show "on the grandest scale within tribal comprehension."

The wide scope of activities embraced by the dances of our native American population makes perhaps the main point of interest over and above all special features. For what must strike every observer of primitive cultures most forcibly is that things which we consider quite distinct, men of a ruder civilization join. Thus the stars are to us a subject for purely scientific study, but even our ancestors invested them with all sorts of mystical properties, and the North American Indian personifies them and identifies them with the heroes of his folk-tales. Thus too, we have ornamental designs and often do not give them any symbolic interpretation. Primitive man is indeed less given to symbolism than perhaps has been supposed; nevertheless his tendency to invest a geometrical pattern with meaning remains greater than our own. So dancing, which to us is merely a form of amusement and exercise, becomes in primitive communities an important social function, an opportunity for sleight-of-hand performances, for religious ritualism, and may become charged with an atmosphere of supreme holiness.

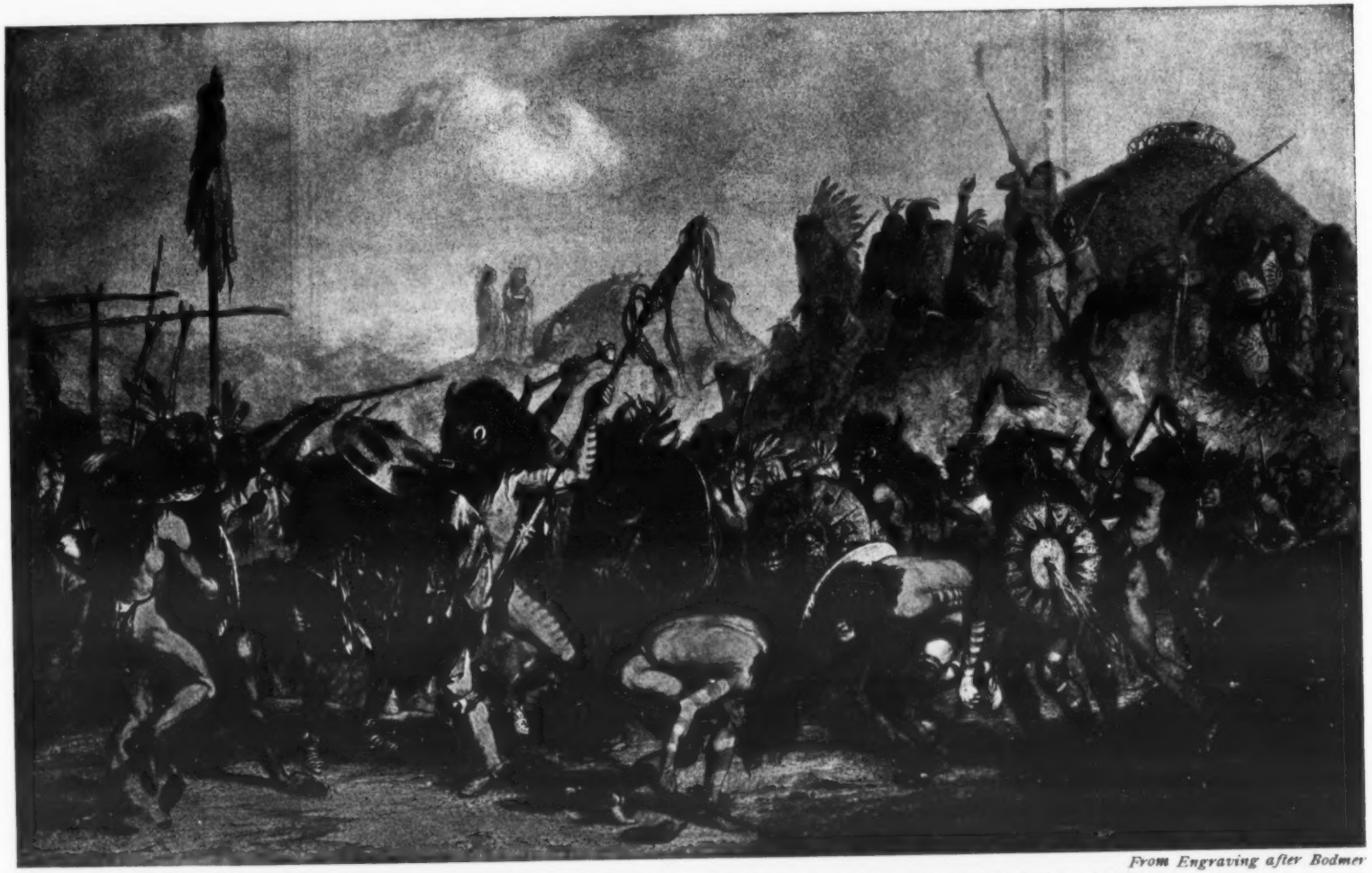
From copyright painting by Will S. Taylor

DANCING TO CURE THE SICK

Ceremony of Tlingit Indians, North Pacific Coast. The dance of the shaman or medicine man is accompanied by chanting and the beating of drums. Scene, the interior of a house illuminated by firelight

Photo by E. W. Deming, San Ildefonso, 1893

THE BUFFALO DANCE IS A PRAYER TO THE GODS OF THE CHASE



From Engraving after Bodmer

BUFFALO DANCE BY MANDAN INDIANS, NORTH DAKOTA, 1832

Very wonderful paintings of Indian ceremonies were made in 1832-34 by a Swiss artist, Charles Bodmer, working under the direction of Maximilian, Prince of Wied-Neuwied

From copyright photograph by Edward S. Curtis

DANCING TO RESTORE AN ECLIPSED MOON, KWAKIUTL INDIANS, NORTH PACIFIC COAST

INDIAN DANCES OF THE SOUTHWEST

By Herbert J. Spinden

THE numerous dances of the Pueblo Indians are never entirely free from a religious idea. Some are so deeply religious that they are jealously guarded from all profane eyes and are held at night in underground lodges. The War Captain's men keep watch at every road so that no outsider can glimpse the masked dancers impersonating gods. Even in the underground lodges the faces of the uninitiated children are covered while the dance is in progress so that they may hear but not see. This secretiveness is most developed in the villages along the Rio Grande, in New Mexico, where the native religion has encountered the opposition of the Catholic Church for nearly four hundred years. Other dances are held in the plaza of the village, and here visitors are usually tolerated while on the annual feast day of each pueblo they are welcomed to a more or less innocuous entertainment.

Photo by E. W. Deming

From a performance of the Buffalo Dance twenty-two years ago

The characteristic dances of the Pueblo Indians are strikingly different from those wild gyrations that we associate with the nomadic and warlike Plains Indians. There are, to be sure, a number of such dances — Enemy Dances they are called — that have been taken bodily from this or that wild tribe and are known by the tribe's name, such as the Cheyenne Dance, the Pawnee Dance, the Navajo Dance. These foreign dances are mostly concerned with war and are not regarded as having any important religious character. Yet it is significant that title to use them was obtained by purchase or trade before the dances were included in the village repertory. Of course the foreign songs had to be learned by rote and a special set of costumes made in keeping with the place of origin.

In one of the introduced dances that is popular at Taos — a woman's dance and therefore not gymnastic — there is first, in the center, a chorus of men. Some of these sit around a large drum

Photo by N. Kendall

On the feast day of Santo Domingo (forty miles north of Albuquerque) on August 4 of each year a memorable dance is celebrated. Besides the ordinary dancers in two divisions are the Chiffoneti or clowns who play pranks and dance with abandon

Photo by N. Kendall

As far as the steps, songs, regalia and general idea of Pueblo Indian dances are concerned, there has been little change during the three hundred and fifty years since the Spaniards came

Photo by N. Kendall

THE GREEN CORN DANCE

The many dances of the Pueblo Indians are never free from the religious idea. The Green Corn Dance at Santo Domingo Pueblo is a variant of the Tablet Dance and is danced in the summer time to insure the success of the corn crops. Several hundred Indians participate. There is rarely the slightest body contact between dancers of different sexes and never an embrace such as characterizes the dances of civilization

Photo by N. Kendall

DANCERS AND CHORUS

A feature of many Pueblo dances is the chorus which sings to the beat of a large drum. The dancers also may sing but as a rule do not

which they beat in unison, while others kneel and mark time by scraping notched sticks that rest on a log for a sounding board. Around them in a circle, or half-circle, are dancing girls. These are not in their everyday Pueblo attire of woven blanket dress with colored belt and whitened deerskin boots but in the fringed deerskin dress of their Plains-bred sisters, with moccasins and leggings. Scarcely lifting their feet from the ground, as they keep time to the song and the throbbing rhythm of the drum and the notched stick instruments, the girls move slowly round the circle using their two hands in a graceful warding-off motion. Outside the circle of girls is a larger circle of men in blankets, each resting his right arm across the shoulder of the man in front and all moving in a direction opposite to that taken by the girl dancers. These men represent Pueblo Indian visitors at the camp of the Plains Indians. The girl dancers and the inner chorus of men are the hosts who provide the entertainment. We see in this the dramatic instinct which in many Pueblo ceremonies is developed to a high degree. The famous Snake Dance of the Hopi is a partial dramatization of an important myth.

Photo by H. J. Spinden

The costumes of the Tablet Dance at San Ildefonso are simple but pleasing. The men wear dance aprons embroidered with designs representing clouds and rain. From the back of the belt hangs a fox skin. Sprigs of aspen are stuck in the arm bands. The women wear the old-fashioned Pueblo dress and are barefooted

While the steps in many Indian dances are simple in the extreme, there is a delicate pulsing rhythm that affects the

whole body and makes the dance almost impossible of imitation for one of another race. Dances in which both men and women appear are perhaps more common among Pueblo Indians than elsewhere in North America. There is rarely the slightest body contact between dancers of different sexes and never an embrace such as characterizes our own dances of pleasure. Pueblo dances are conducted decorously — if we omit the religious orders of clowns whose antics are often none too delicate. Both men and women seem to be imbued with a sense of religious solemnity and seldom smile but there is no doubt that the sway of the dance is no less a source of sensuous delight to them than it is to ourselves.

Pueblo dances proper are mostly concerned with rain, fruitful harvests, and abundant supplies of game. Much of the prescribed regalia represents clouds, falling water and blossoming plants. The symbolism is worked out in feather headdresses, embroidered aprons, painted wands, etc., and is magical or coercive in character. Wild animals are supposed to be pleased by dances in which they are mimicked and to allow themselves to be killed in return. All the persons chosen for important dances have to undergo four days of preparation and purification during which they are isolated from their townsfolk. The religious heads of the village, called "caciques," are masters of ceremonies and the War Captain and his men are watchers, warders and providers.

The public dances in the plaza are more or less processional but the advance is very slow and the trail of footprints in the dust shows how the dancers have inched their way. There are definite spots for stationary dancing and here countermarching is used to make new quadrille-like formations.

A good example of this sort of dance

Photo by E. W. Deming

The Tablet Dance twenty-two years ago at Santo Domingo

is the so-called Tablita Dance which takes its name from a painted tablet representing clouds that is worn on the heads of the women. It is a spring and summer dance connected with maize and is designed to bring rain for the growing crops. The costume is especially devised for this occasion and every detail of dress and ornament has a special import. Of course, variations are to be noted from one pueblo to another. On the great feast day of Santo Domingo in August this dance is celebrated and several hundred persons take part in it. Besides the men and women dancers, who are divided into two divisions according to the social grouping of the clans, there are Chiffoneti or Delight-takers in two orders and a number of individuals painted to represent special mythological beings. The Chiffoneti are clowns whose naked bodies are painted with broad stripes of black and white and whose hair is smeared with mud and tied with corn husk. The ostensible purpose of these clowns is to make merry and do what mischief they can but in reality they are the only persons who can conduct the gods of rain and fruitfulness into the village and they thus occupy an important esoteric place in Pueblo religious life.

Photo by E. W. Deming

The Tablet Dance takes place in the spring and is a prayer for rain

Photo by E. W. Deming

Clowns in the Santo Domingo Tablet Dance. It is their duty to rush through the village and with little whips drive all the workers or dancers to fulfill their respective parts in the ceremony

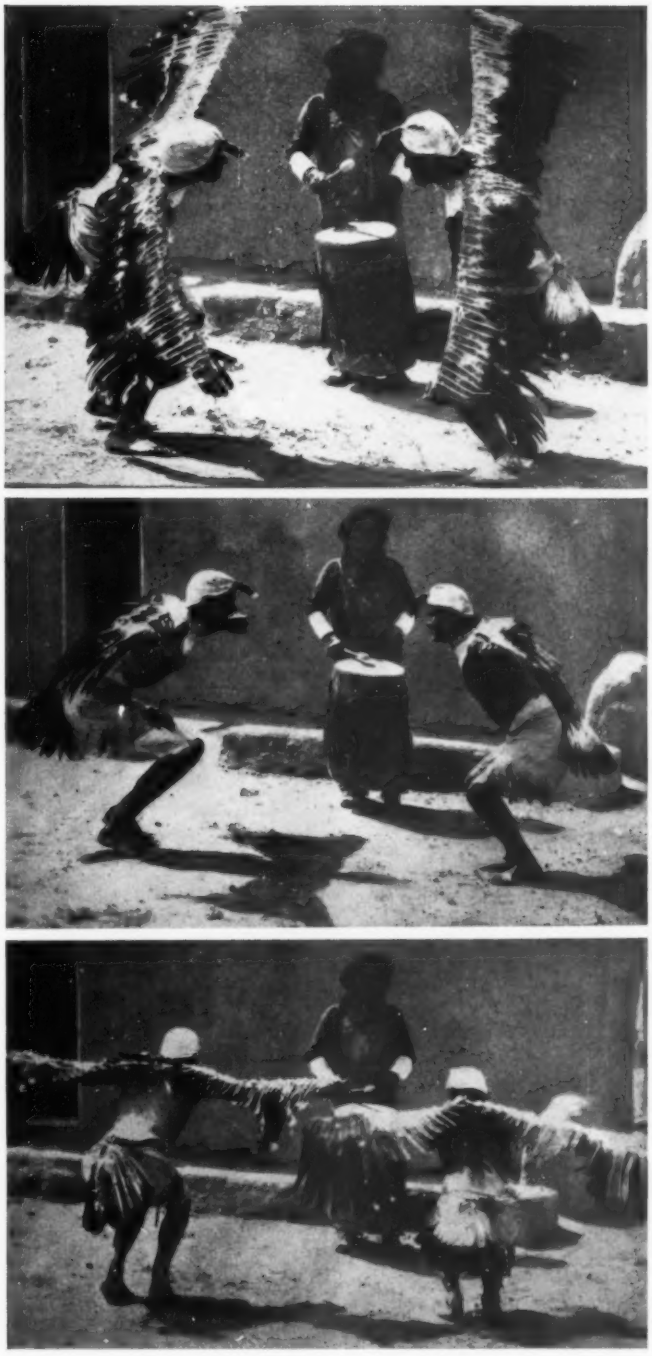
The Buffalo Dance, the Deer Dance and the Eagle Dance are examples of mimic animal dances. Headdress and body coverings are made when possible from the skins of the animals in question or color is used where skins cannot be worn. The characteristic cries and postures of the animals are often cleverly imitated. In the Buffalo Dance a number of animals, including deer, antelope and elk, are represented in addition to the Buffalo Men and the

Photo by E. W. Deming

Chanters in the Tablet Dance, Santo Domingo

Buffalo Maid. Except in case of the last-mentioned person, all the dancers wear animal headdresses. They are brought into the village at daybreak by herders dressed in buffalo robes and carrying bows and arrows. A chorus meets them and escorts them, between a double file of ordinary men and women dancers, to the dancing places. The dance lasts about twenty minutes and is repeated several times during the day. At sunset the dancers retire into the hills and resume their ordinary clothing. In the Deer Dance the same mimicry is seen and when the last dance is over, the deer run away into the hills at top speed. The girls try to catch one of the little deer and sometimes succeed.

At the secret dances held at night in the underground lodges the dancers wear masks and impersonate the mythological beings. Most of these have definite and well-known characteristics and are at once recognized. Although dances of this sort in the Rio Grande region



The Eagle Dance is exhausting physically to the dancers, but interesting to the spectators for its dramatic quality. The eagle men are guided from the underground lodge to the dancing place by a line of sprinkled corn. They imitate very cleverly the characteristic postures of a bird

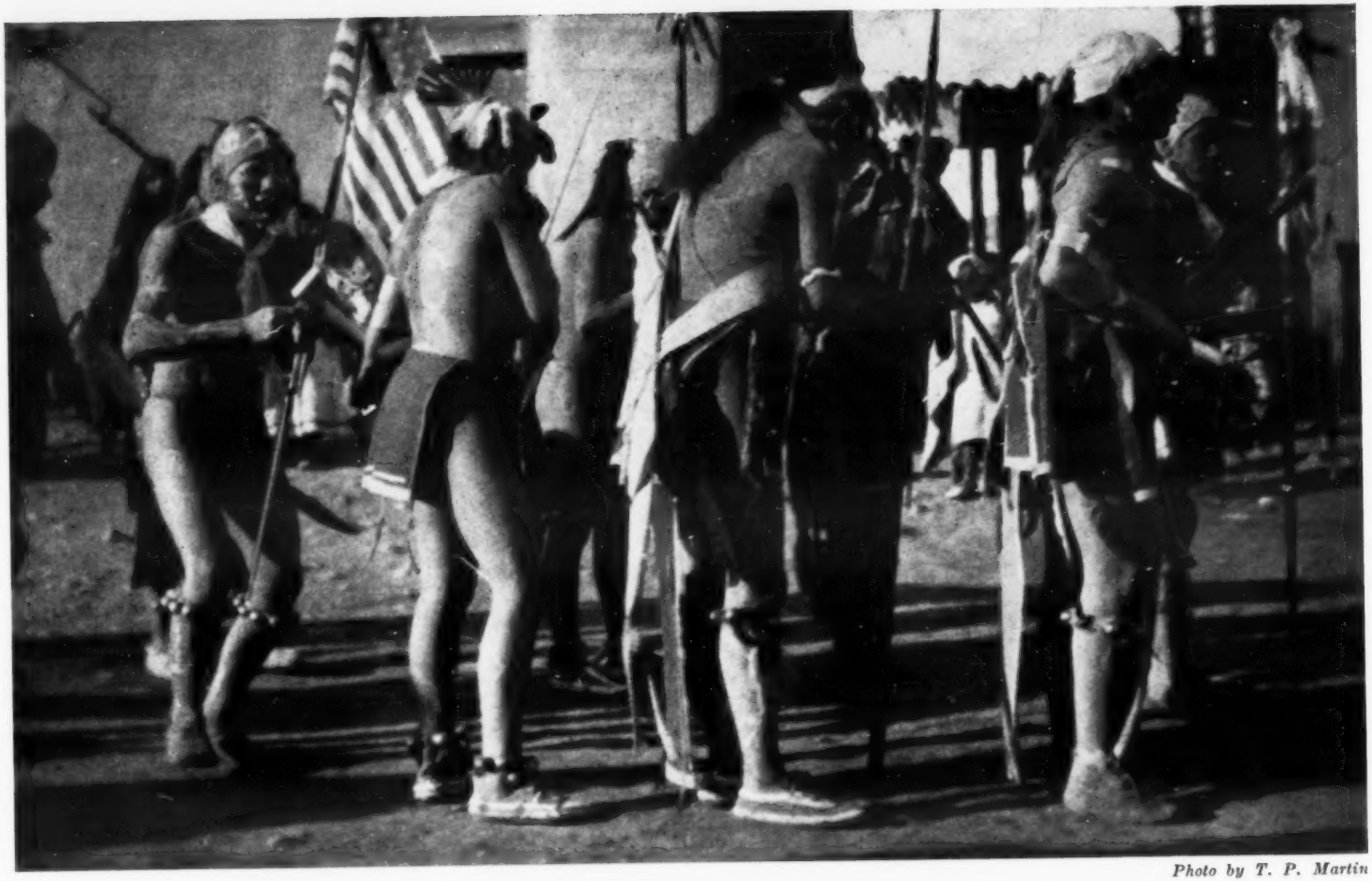


Photo by T. P. Martin

PAWNEE DANCE AMONG THE PUEBLO INDIANS

The Pueblo Indians have certain introduced dances taken bodily from the dances of wild tribes and known by the given tribe's name. This represents the Pawnee Dance at Taos (a pueblo eighty miles south of Santa Fé and having the most intercourse with the Plains Indians). In this dance the Pueblo Indians represent the Pawnee, a nomadic tribe who shave the head leaving only a roach of hair. Skull caps with a slit through which the hair is drawn make possible an imitation of this custom

cannot be seen by outsiders and must be studied from information and native drawings, still similar ones are danced in the open in the Hopi villages of Arizona. The dramatic instinct comes out strongly in some of these secret dances. This is particularly true of the ceremonies preceding the arrival of the masked dancers who represent mythological beings. These mythological beings are supposed to live in the under world and to come up through lakes and springs when they visit the upper world. The Chiffoneti or clowns are the intermediaries between mortals and these gods.

The caciques determine when a masked dance is to be held and they select the dancers. The latter are locked up for four days and purified by fasting and ablution. At the appointed time all the villagers go to the underground lodge and seat themselves in readiness for the performance. Soon two clowns appear at the hatchway in the roof and come down the ladder. They make merry with the spectators. Then one says to the other, "My brother, from what lake shall we get our masked dancers to-night?" "Oh, I don't know. Let's try Dawn Cañon Lake. Maybe some Cloud People are stopping there." Then one clown takes some ashes from the fireplace and blows it out in front of him. "Look brother," he says, "do you see any Cloud People?" They

Photo by E. W. Deming

One of the side dancers in the Buffalo Dance, San Ildefonso Pueblo Indians, 1893. A buffalo horn on one side and three eagle feathers on the other decorate the head. The crosses painted on the body are magical devices supposed to aid in the hunting of buffalo

Photo by E. W. Deming, 1893

Forward movement of side line of dancers in Buffalo Dance, San Ildefonso. To the rhythmic beat of drums the dancers advance slowly, swaying alternately to right and left and shaking their rattles toward the ground on the one side and then on the other

Photo by E. W. Deming, 1893

In the center between the side lines of the buffalo dance are the Indian dancers representing animals and imitating their movements, three buffalo (two bulls and one female), two black-tailed deer and two antelopes. The Indians representing buffalo wear the complete buffalo head as a headdress. Specimens of these headdresses as well as those worn in the Deer Dance are on exhibition in the American Museum

peer across the ash cloud and one says, "Yes, here they come now. They are walking on the cloud. Now they stop at Cottonwood Leaf Lake." Then the other clown blows ashes and the questions are repeated. Thus the Cloud People are drawn nearer and nearer until they enter the village. The clowns become more and more excited and finally cry: "Here they are now!" and the masked dancers stamp on the roof and throw game, fruit, and cakes down the hatchway. When the masked dancers enter, the children are covered but the older people drink in the divine presence with the palm of their hands as one scoops up and drinks water. These masked dancers may not talk although they make peculiar sounds. Their wishes are told in pantomime.

The songs used in these ultra-sacred ceremonies have words and sometimes a sentiment that is beautiful. More commonplace dances may be accompanied by songs without real words and only a jumble of meaningless syllables. Here is a song from the Turtle Dance — one of the winter dances of sacred type. It refers to the coming of spring.

Povi ts'e anyu
Povi tsâ nyu anyu
Khu^{n} p'i nyu anyu
Khu^{n} tsâ nyu anyu
Gi na^{ng} ak'o
Gi na^{ng} ak'o
Nde wa pa he ra^{ng}
Na we ndi powa

Yellow Flower Girl!
Blue Flower Girl!
Mottled Corn Girl!
Blue Corn Girl!
Thus on the plain,
Thus on the plain,
Everything they revive
And hither return!

Photo by H. J. Spinden

The circuit of the Antelope Priests in the great Snake Dance ceremony at Walpi (in the Hopi country, Arizona). This dance is a collaboration of the Antelope and Snake societies and is a partial dramatization of an ancient Indian myth. Many of the Southwest dances are carried out with great solemnity, often at night in underground lodges, the masked dancers impersonating gods. [The March, 1913, JOURNAL reproduced a long series of photographs of the Snake Dance by the artist, Mr. Howard McCormick]

JOHN MUIR, AMERICAN NATURALIST, EXPLORER, AUTHOR, 1838-1914
BESIDE ONE OF THE TREES HE LOVED

The mountains and flower-covered foothills of the Sierras, the glaciers of Yosemite, giant sequoias — these were the comrades of his high spirit. He lived among them for many years — often in loneliness for human comradeship, studied them with devotion, with the close observation of a scientific mind, and wrote and talked of them with charm and power. He persistently championed their preservation for the people and to his efforts we owe to-day our sequoia groves, the Yosemite Valley and Yellowstone Park

[Photograph presented by John Muir to Professor Henry Fairfield Osborn in 1911]

THE CONVERSATION OF JOHN MUIR

By Melville B. Anderson

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JOHN MUIR is beyond care for what we do, yet I am a little disturbed by the feeling that, if he knew what I am doing now, he would not spare me a shaft of his irony; perhaps, with allusion to Burns, his prince of poets, he would enquire what he had done that I should be discharging my musket over his grave! Certainly I have no claim to be heard upon him, just as I had no claim to his friendship, with which, nevertheless, I was graced for nearly a quarter of a century. Yet I like to think of "the way that love began."

When John Muir, then a shy youth, best known at the University of Wisconsin as a mechanical genius, left his Alma Mater to start upon his great quest, he carried a letter from Professor Butler to Miss Catharine Merrill of Indianapolis, a lady whose memory is ever blessed among the elder generation there. At Indianapolis he stopped for awhile to earn some money by working in a machine-shop, where, however, he met with an accident which deprived him of sight in the right eye and threatened him with total blindness. During this trying time Miss Merrill, who was a busy teacher, showed herself a friend in need. In a memorial notice of her, he says: "She came to my darkened room an angel of light, with hope and cheer and sympathy purely divine." It was from the lips of this lady that I first heard of Muir, and through my friendship with her and her family that it became natural and necessary, when coming to California, that I should know him. Thus one of the most perfect of women is beautifully linked in my memory with one of the noblest of men. Now that they are both gone, it is pleasant to think that what I had in him I owed to her grace.

Muir had set out for South America, and the next stage of his trip was a tramp from Indianapolis to the Gulf. There he suffered another setback in the shape of an attack of some malignant fever. Recovering from this, he changed not his mind but his goal; the tropics, he decided, were not for him — he would go to California. He has often told me of his landing in San Francisco one April morning in I know not what year in the sixties. Strolling up Market Street and peering timidly into the faces of the people hurrying to the business of the day, he at length singled out a carpenter carrying a box of tools on his shoulder, as one who might safely be accosted. The momentous question was one to which, for the rest of us, the speaker's future life was to be a large answer: "How can I get out of town?" — The reply of the carpenter was: "Well, sir, you just go back the way you came and take the Oakland Ferry." — Oakland was then but a straggling village, and the way out was not the problem that it now would be for a stranger on foot. Instantly Muir turned his back upon all that San Francisco might have to show, and found himself an hour later at home and happy in the hills above Oakland. Following the line of the hills and mountains, he sauntered day after day, botanizing as he went, as far as Pacheco Pass, whence he had a Pisgah view of his Land of Promise, the distant Sierra. Descending

into the San Joaquin Valley, he found it everywhere glowing with beautiful flowers. Men with their cattle had not yet broken into this garden of Nature to such a degree as to devastate it, and to push out of existence scores of plant-genera. He would lie down in his track at night and look up at a luminous and friendly sky through a canopy of Mariposa lilies. Making his way across the great plain and up along the Merced River, he found himself after a few days on the brink of Yosemite. What followed is told in *My First Summer in the Sierra*. Equally interesting would have been his account of his first winter there. Someone employed him to build a sawmill and to cut lumber, so that within a few months he had earned, as he once told me, enough money to last him for the next fifteen years.

Then began the series of patient hardy explorations of which his books and articles are but a fragmentary record. More than once, during the last year of his life (which no one thought of as the last!), I urged him to continue the autobiography which he seemed to have dropped just at the outset of his real career. His answer was that the writing would require another lifetime. Possibly he may have felt that whatever he wrote was in the best sense autobiographical; it is indeed peculiarly true of his writings that they bear the stamp of his character. Then, too, he detested the drudgery of composition. Whenever I went to see him, he was doggedly at work upon some literary task; the Scot in him kept him forever at it, although not forbidding him the luxury of an occasional lament. I am sure his writings have cost him more groans by far than all the hardships incident to his explorations. Less than a fortnight before the unforeseen end, going up as usual through the lonely house without the ceremony of knocking, I found him sitting before the fire at work upon his typewritten manuscript. Showing me the new bookshelves he had had made since my previous visit, he said, upon my congratulating him on the orderly state of his library, which for years had been lying in dusty heaps and tiers along the floor: "I am going to begin buying books now." — "What," I could not help saying, "do you expect to do much reading?" — "O yes"; and then with a sigh, "If I only had not so much writing to do!" —

He always appeared eager to put everything aside for the sake of a long talk. After the marriage of his daughters he lived alone in the old mansion, which stands on a mounded knoll rising from amid the narrow alluvial valley of Alhambra. He took his meals at the neighboring house where his elder daughter with her husband and growing family lives, and was otherwise cared for by a faithful old Chinaman who had been in his employ for some thirty years. This old gardener was a man of deeds, not words. Orders were received in silence, and did the master wish to assure himself that an order was understood, the reply would be: "Too muchee talk!" — In thirty years the taciturn fellow had not learned thirty words of English. For all his inward resources, and notwithstanding the pleasure he took in the family of his daughter, perhaps Muir had moments of loneliness. Whenever I wrote asking permission to visit him for a day, he would telephone or telegraph that I should come soon and stay as long as possible.

Scarcely would the guests be seated, when Muir would begin, as if thinking aloud, pouring forth a stream of reminiscence, description, exposition, all relieved with quiet humor, seasoned with pungent satire, starred and rainbowed with poetic fancy. What would one not

give for a phonographic record of those wonderful talks! One recalls them as one recalls the impressions of travel, or the pictures in a gallery, or sweet music which one is impotent to reproduce. Taking a text from what was uppermost in his mind, or from a chance question, or from a leaf or pebble or petrifaction, he would begin very quietly and without the slightest hesitation, and would soon lead the spellbound listener into the inward parts of the subject. Sadly considering how little I can recall, I respect more than ever the talent of a Boswell. Whatever one attempts to reproduce seems to fade like those pebbles which Emerson brought home from the brook. I venture to offer here two imperfect snatches of his talk, which I owe to a friend who accompanied me to visit Muir last August, and who jotted down a few notes. Muir rarely referred to current events, but some reference to the invasion of Belgium brought out the following deliverance:

It all reminds me of an experience of mine soon after leaving the University of Wisconsin. I wanted to go to Florida to see the plants down there; so I set out afoot toward the fall of the year. I traveled along the western foothills of the Appalachian Mountains where the people were none too hospitable. It was just after the War and they were distrustful of Northerners. When refused shelter I would creep into the thickest brush I could find under the large trees. Often it would rain, and again it would not be safe to light a fire, so that I got pretty chilly by morning. Then, when the sun was up, I'd crawl into an open, sheltered spot and try to get another nap. But I didn't generally sleep long. The people there all keep hogs and let them run on the mountainsides to feed on the acorns. In order to keep the herd together, they throw out a few ears of corn in the morning about the cabin, at the same time calling the hogs. I'd hear a shout away down the valley somewhere, then a crackling of the brush all round, and those razorbacks would come charging down the hillside right through my little camp and right over me, if I didn't look out — snorting and squealing, blind and mad to get at that corn.

And that's the way with us in these days of our modern civilization and automobiles and a' that, rushing pellmell after something and never getting anywhere. We imagine if we make a big disturbance we're "progressing"! — Progressing down hill like the Gadarene swine! —

Much later on in the same conversation, he chanced to be speaking with humorous indignation, but not unkindly, of certain differences he had had with an Eastern naturalist, and wound up about as follows:

....But I got the better of him once. A number of us, botanists and foresters and others, were examining the mountain region of Tennessee and North Carolina and on down the ridge. The autumn frosts were just beginning, and the mountains and higher hilltops were gorgeous. My friend and the rest were making a little fun of me for my enthusiasm. We climbed slope after slope through the trees till we came out on the bare top of Grandfather Mountain. There it all lay in the sun below us, ridge beyond ridge, each with its typical tree-covering and color, all blended with the darker shades of the pines and the green of the deep valleys.— I could n't hold in, and began to jump about and sing and glory in it all. Then I happened to look round and catch sight of —— standing there as cool as a rock, with a half amused look on his face at me, but never saying a word.

"Why don't you let yourself out at a sight like that?" I said.

"I don't wear my heart upon my sleeve," he retorted.

"Who cares where you wear your little heart, man?" I cried. "There you stand in the face of all Heaven come down on earth, like a critic of the universe, as if to say, Come, Nature, bring on the best you have: I'm from BOSTON!" —

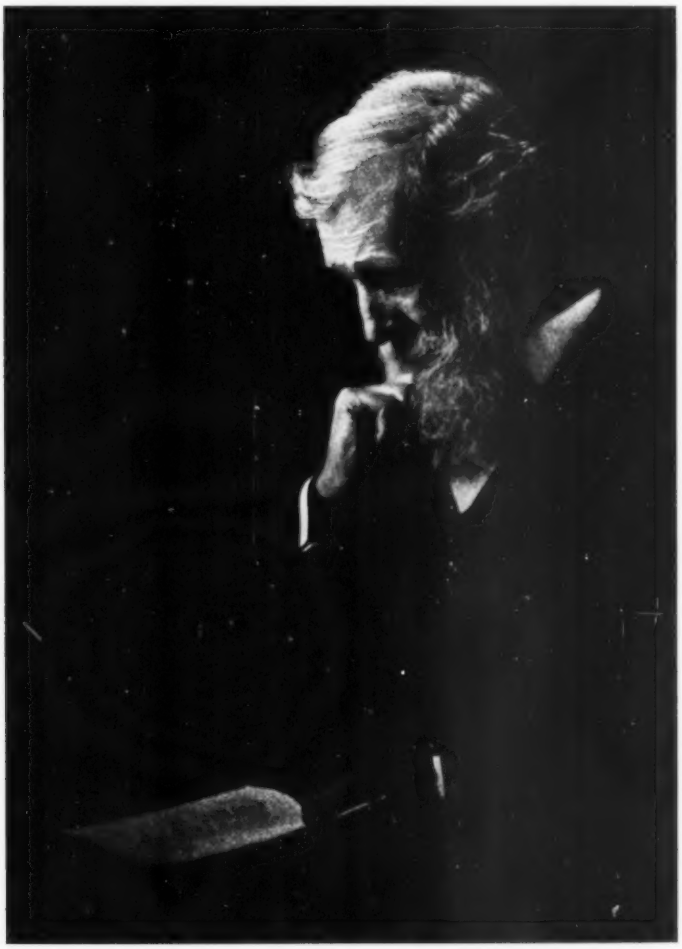
Sallies like these were not infrequent, but the main current of his talk was deeper and graver. One hobby, upon which he would discourse for hours with poetic eloquence, interspersed with philippics against those chamber geologists

who "never saw a glacier in the life," was the glacial origin of the Yosemite and kindred gorges. On one occasion, when my companion was a colleague interested in mechanical subjects, the conversation turned all upon inventions, and Muir brought out the remnants of the celebrated machine for facilitating early rising, described in his autobiographical volume. I remember that we had that day propelled our bicycles the ninety odd miles from Stanford University to the Alhambra Valley, and the exhausted flesh quenching the spirit, I was obliged to interrupt our host early in the wee sma' hours. I have no doubt he would have talked all night and would in the morning have been as fresh as Socrates after the Symposium. Last August, I chanced early in the conversation to ask him why the prairies of the Middle West were treeless, since it is proved that trees flourish there. To answer that question he took an hour or more, talking freely with great wealth of detail and illustration, but without diffuseness. He liked also to give long accounts of his great journey round the world, when he visited the Himalaya, Australia, Africa, Chili, all apparently with the guiding purpose of studying certain kinds of trees.

Perhaps the secret of his pleasure in narrating episodes of his life is to be found in the illusion of living over again, feeling the thrill of past emotion, sensing the flow of spent springs of joy. As he revisited in the light of vivid memory beautiful landscapes and memorable places, he carried along with him the sympathetic listener, who received much of the delight and profit of travel without expense, without fatigue, and without that sense of wasted time which the traveler suffers in the dreary intervals of waiting and transit. What was told was so interesting in subject and manner that one did not think until afterward of the wonderful qualities of the teller — his alertness and flexibility of thought, his photographic memory, his wit and poetic imagination, his selfless regard for whatever seemed true to him — his scorn, too, for the man who, having knowledge of the truth, stoops for a mean end to flatter the public with the falsehood for which poor human beings chiefly crave. Despite his fullness of talk and the unusual remoteness of his interests from those which, unhappily, chiefly claim our solicitude, I never found him either tedious or garrulous. Simple and almost childlike as he seemed, the hearer felt, upon reflection, that in this simplicity was the most cunning refinement of art. I used to fancy that he used conversation as a means of shaping his material and trying out his effects for composition. One was struck with the masterly way in which he handled long and complicated sentences, whose members would fall into line with the precision of a well-trained military company after the confusion of a sudden change of face. Finally, his vocabulary was choice and arresting; to slang he never needed to descend to produce a telling effect; his talk had none of the cheap devices by which we Americans are especially prone to seem witty at no expense to ourselves. He was indeed saturated with the homely proverbial wisdom of Scotland and with the wit and satire of Burns, and loved to lighten his discourse with them; but he never stooped to any hackneyed or vulgar phrase.

In the high Sierra there are trails which lead along the axis of the range, sweeping in great curves far back toward the river-heads in order to avoid the deeper gorges, in places climbing nearly level with the snow-line up where the hardy pines crouch on all-fours — nay, all-twenties, all-hundreds — as if to provide

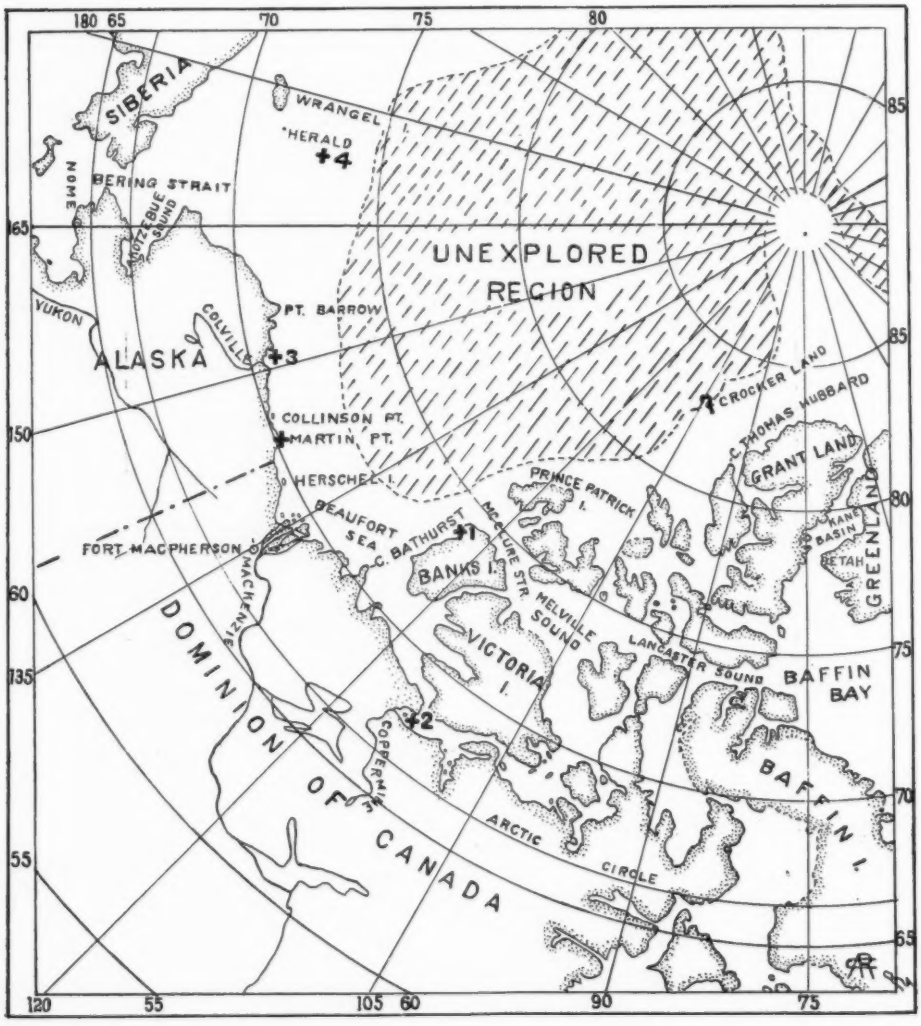
shelter for storm-bound man or beast; again plunging far down through the shadowy forest to embowered stream-beds where the traveler pauses in the sheen and fragrance of the azalea, and where the water ouzel dances to the fluting and tinkling of the rivulet. Like such a trail in varying charm was the talk of John Muir, dwelling much upon the heights, anon descending to pleasant homely places, giving glimpses at times of Nature's jealously guarded arcana, freely turning aside on the spur of every casual fancy, and when apparently most vagrant, bringing you at last safely into camp at the goal for which you started.



Courtesy of Houghton Mifflin Company

"....I wandered away [after four years' study at the University of Wisconsin] on a glorious botanical and geological excursion, which has lasted nearly fifty years....always happy and free, poor and rich, without thought of diploma or of making a name, urged on and on through endless inspiring, Godful beauty."

Fame pushed its way however to John Muir. His books will live for many a generation to read with delight and with reverence for the man.— And he will be greatly missed in practical work. At the time of his death he was president of the Society for the Preservation of National Parks and vice-president of the California Associated Societies for the Conservation of Wild Life, and always his judgment and personal influence came as authority. [Photograph from *The Story of My Boyhood and Youth*]



Map to show the extent of unexplored territory in the north polar region, and the various points of activity of the Canadian Arctic expedition commanded by Vilhjálmur Stefánsson. The unexplored region is supposed to contain somewhere within it, as proved by a study of the tides, a body of land of continental proportions or an archipelago of islands, such as seen to the eastward

+3. "Karluk" frozen solidly in the ice pack broke from what had been considered permanent winter quarters and drifted westward, September 23, 1913, leaving Stefánsson and hunting party stranded on shore

+4. "Karluk" crushed in the ice pack in which it had been carried four months, and sank, January 10, 1914. Twelve survivors rescued from Wrangel Island, September 7, 1914

+ Martin Point. Stefánsson and two companions, March 22, 1914, started north over the sea ice for a thirty-day exploration journey into the unknown region, having heard nothing from the "Karluk" to that time and having arranged for various activities of the southern party of the expedition in winter quarters at Collinson Point. Nothing has been heard from this exploration party to date, one year later in 1915

+1. One of the small vessels of the expedition probably at this point in winter quarters, 1914–15. Proceeded under charge of Wilkins in the summer of 1914 to form base of supplies for Stefánsson should he be able to reach Banks Land instead of returning to the north coast of Canada or Alaska

+2. Winter quarters 1914–15 of the southern land party under R. M. Anderson, having proceeded to this position with two small vessels of the expedition in the summer of 1914 for scientific study of the Eskimo there, of the copper deposits, etc.

WITH STEFÁNSSON IN THE ARCTIC

A BRIEF HISTORY OF STEFANSSON'S MOVEMENTS FROM SEPTEMBER 20, 1913, WHEN HE LEFT THE "KARLUK" ON A HUNTING TRIP INLAND, UNTIL APRIL 7, 1914, WHEN HE WAS LAST SEEN ON DRIFTING ICE, OVER 180 FATHOMS OF SEA AT THE EDGE OF THE CONTINENTAL SHELF IN THE ARCTIC OCEAN

By Burt M. McConnell

Of the Canadian Arctic Expedition, 1913–1914

WHEN early in September, 1913, the drifting ice-field in which the "Karluk" was frozen became stationary about eighteen miles off the mouth of the Colville River in 149° W. longitude and remained in that position for ten days, Stefánsson and Captain Bartlett concluded that the ship was in safe winter quarters. Our four Eskimo, although excellent marksmen, had been unable to hunt seals successfully because the animals were not at that season covered with a layer of blubber sufficient to keep them afloat after being killed, and as fresh meat is the only known preventive of scurvy in the Arctic, Stefánsson decided to take ashore a party, consisting of Jenness, Wilkins and myself, to hunt caribou forty miles inland on the Colville River.

The "Karluk," as is probably known to most readers of the JOURNAL, was carried to the westward by a gale a few days after our departure, and four months later, on January 10, 1914, was crushed by the ice at a point about eighty miles northeast of Wrangel Island which is in 180° W. longitude and 71° N. latitude. She sank the next day, leaving her company of twenty-five marooned on the ice. Under the leadership of Captain Bartlett, sixteen members of the expedition succeeded in reaching Wrangel Island on March 12. Here they maintained themselves in two camps until September 7, 1914. On this date they were rescued by Olaf Swenson in the power schooner "King and Winge," word of their plight having been brought to the outside world by Captain Bartlett. Eight of the original company, including two of the world's foremost scientists, James Murray, oceanographer, and Henri Beuchat, anthropologist, became separated from the main party and have never been heard from since. George S. Malloch, geologist, Bjarne Mamen, his assistant and George Breddy, a fireman, perished on Wrangel before aid could reach them.

The story of the rescue of the survivors from Wrangel Island was told in the February number of *Harper's Magazine*, and in the April issue of the same magazine, will be told the story of Stefánsson's various activities after reaching shore and of the trip over the ice from which he and his two companions have not returned.— Anyone who knows Stefánsson, who is familiar with his singular psychology, his resourcefulness and his determination, would understand that he would let nothing, not even separation from the "Karluk" and the larger part of his scientific staff, interfere with the accomplishment of one of the main objects of the Canadian Arctic Expedition — which was the exploration of as much as possible of the unknown area north of Alaska and western Canada. There could be no surprise therefore at his plan to go northward with dog teams over the ice in search of the group of islands or the hypothetical continent which students of tidal phenomena have argued exists in that area, although the

original plan had been to make the search from Banks Land or Prince Patrick Land with the well-equipped "Karluk" as base.

Our hunting party from the "Karluk," on September 20, 1913, found the ice between the ship and the shore one continuous jumble of chaotic ridges. Often they were thirty-five feet high. We were two days in covering the distance to a small sandspit five miles from Beechey Point on the mainland. Finding the ice over the warmer river water of the Colville delta dangerously thin, Stefánsson decided that during the necessary waiting he would send me with one Eskimo back to the ship for two more men and another dog team — so sure was he of obtaining more than the amount of game the additional team could haul. On the night of September 22, he wrote a letter to Captain Bartlett and gave me explicit instructions covering every possible contingency that could arise on the journey back to the ship.

These instructions were not needed however, for just after midnight a furious northeast gale arose. This increased and continued unabated for three days at the end of which time the sea ice was broken off within a mile of shore. It was very evident that unless the "Karluk" had been able to free herself, she must be drifting before the wind westward in the ice field which had so long been her berth. About one week after reaching "Amouliktok" as the sandspit is called, we ventured over the ice of the delta, gaining the shore September 28.

On October 3 we started westward on the sled journey to Point Barrow. Reaching there we found that what the Eskimo thought was the "Karluk" had drifted past a week before, and that no one had come ashore from her. Stefánsson decided to proceed to Collinson Point three hundred sled-miles east of Point Barrow. We had learned that here Dr. R. M. Anderson and the southern party, which had sailed from Nome at the same time as the "Karluk," in the auxiliary vessels "Alaska" and "Mary Sachs," were in safe winter quarters.

Our journey to Collinson Point was without noteworthy incident. We had rapidly become accustomed to sled travel and soon Stefánsson's extraordinary ability as an ice traveler ceased to excite our comment. His accurate knowledge of local conditions often saved us from making unnecessary marches. Driftwood is plentifully distributed every few miles from Point Barrow to Herschel Island, with the exception of a stretch of forty miles across Harrison Bay and another stretch of twenty miles across Smith Bay. Stefánsson knew just where to look for this and could tell us approximately how long it would take us to travel from our camp of that morning to another suitable site.

Before leaving Point Barrow, he had sent out to various Eskimo villages along the coast south from Point Barrow to Kotzbue, letters of instructions for Captain Bartlett in case he should reach the coast at any point, and on the way to Collinson Point, we left several of the letters with Eskimo at different places for the information of anyone who might come ashore from the ship.

On the last day of our journey, we gained from Stefánsson a demonstration of his ability in sled travel. He had taught Wilkins and me how to pitch camp in a blizzard and how to find our way without the aid of a compass by referring to the snow-drifts made by prevailing winds. On this occasion in a southwest blizzard, with wind blowing at the rate of forty-five miles an hour and in a blinding snowstorm, Stefánsson led us without a trail or a landmark

of any sort for twenty miles, and at the end of the journey was only one hundred yards out of the way. On several occasions that day, the last few hours of which we traveled in darkness, we entirely lost sight of him, although at no time did he ever go more than twenty feet ahead of the dogs.

Arriving at Collinson Point too late to catch the outgoing mail, Stefánsson, with one companion, started for Fort Macpherson to send out despatches, reports and letters. He also made arrangements there for boats and men to help the geographers of the southern party in the work of locating a navigable channel from Fort Macpherson to the mouth of the Mackenzie; he purchased the gasoline schooner "North Star" and her complete outfit of tools, arms, ammunition and provisions to take the place of the "Karluk"; engaged experienced men, Storker Storkersen, who had been with Leffingwell and Mikkelsen in 1906–07, and Ole Anderson and Aarnout Castel, men of many years of Arctic experience, for his contemplated trip northward over the ice, and returned to Martin Point late in February.

In the meantime, Stefánsson had sent me to Point Barrow to bring back Jenness, whom he had left at Cape Halkett to study the Eskimo there, and to get the mail. I was unable to return before March 22, the day on which the ice party started. By having a rest of only three hours and starting out at night from Martin Point, I was able to overtake the party out on the sea ice, and I asked Stefánsson to allow me to accompany him as a member of the supporting party. This party consisted of Captain Bernard of the "Mary Sachs," Wilkins, photographer, Johansen, marine biologist, and Ole Anderson. We were to accompany Stefánsson, Storkersen and Castel due north for ten days, carrying extra rations and dog food.

On the second day out however, Captain Bernard fell from a high pressure ridge and had to be taken back to shore, where the wound on his head was sewed up and arrangements were made with Crawford, one of the engineers, to take his place.

On our second attempt, we came to open water the second day. The ice field on the opposite side was moving so rapidly that it was considered impracticable to ferry across with our improvised sled-rafts, so Stefánsson availed himself of this temporary delay to send Wilkins and Castel back to headquarters with some excess baggage, and for the use of the southern party a few seals we had killed. They started at noon. By four o'clock that afternoon, snow had begun to fall heavily and the light southwest wind had increased to about twenty-five miles an hour. Three hours later we were in the grasp of a hurricane that blew at the rate of eighty-three miles an hour. This razed one of our tents and detached from the grounded shore ice the floe on which we were camped. The next day Stefánsson and Storkersen ascertained by observations that we had drifted about forty miles to the eastward and thirty miles out to sea.

This misfortune, which kept Wilkins and Castel on shore, of course reduced our party to only six men, nineteen dogs and three sleds. We encountered frequent obstacles in the form of huge pressure ridges, over which trails had to be cut with picks, and open water on several occasions prevented us from making rapid progress. We continued nevertheless steadily northward.

Two of our sleds were of the light Point Barrow type, and soon became splintered by the rough ice. (All our best sleds were aboard the "Karluk.") The

third sled was of the heavy Nome freighting style and capable of withstanding the hardest usage. The dogs had been gathered from points between Fort Macpherson and Nome, and were in very good condition. Our tents were light in weight and both water and wind proof.

It usually took us an hour to pitch camp, get dinner over and feed the dogs, after which we would immediately roll into our sleeping bags. Each man, before coming into the tent, was expected to brush every particle of snow from his clothing. This invariable rule of Stefánsson's prevented our sleeping gear from getting damp and insured the comfort of every man who obeyed it. Wilkins and I had been chosen to do the cooking, but when he had been left ashore, both Anderson and Stefánsson took turns with me. It was our custom to have breakfast at six thirty in the morning and, as soon as the meal was finished, everyone except the cook would begin breaking camp, loading the sleds, harnessing the dogs and preparing for the start.

Stefánsson would then take the lead, carrying a small ice-pick with which to test the ice and knock off sharp corners in our path, and we would continue in single file until either open water or a pressure ridge would bring us to a halt. The ice on which we traveled was always in motion, so that on some days our actual progress would be slight, even though we had traveled many miles. This was rather discouraging, but no one ever thought of turning back.

Our drift proved to be to the southeast. Storkersen took observations daily and Johansen took soundings at every opportunity. On April 3, Storkersen's observation was as follows: 140° 50′ 22″ W. longitude, 70° 13′ 11″ N. latitude; while his observation on the last day at "Camp Separation", April 7, gave our position as 140° 30′ 7″ W. longitude, 70° 20′ 4″ N. latitude (about sixty-five nautical miles from shore). We had actually lost ground in those four days! Johansen's soundings, which had been heretofore from 17 to 30 fathoms, went abruptly from 34 fathoms to 70, 149 and 180, which proved that we were on the edge of the Continental Shelf.

Here Stefánsson decided to send Crawford, Johansen and myself back to shore with two dog teams and the two worn-out sleds. He took with him Storkersen and Anderson, two of the hardiest and most experienced men in that country, the six best dogs, the best sled and a load of over nine hundred pounds. This included two rifles and four hundred rounds of ammunition. He told us at parting that he would continue northward for fifteen days before turning back. He also left orders for one of the ships to be taken to Banks Land, in case the winds and current might carry the ice on which he was traveling near enough to the island to warrant him making a dash for it. Since then the party has not been seen, although the "Polar Bear" and "Belvedere" searched the west and southwest coasts of Banks Land in summer.

Our journey back to shore was rather uneventful. There were a few tense moments, when on one occasion, three polar bears came up to our tent. At another time the ice on which we were camped broke up into small pieces, leaving our tent within eight feet of the edge on one side and about twelve on the other. Three days after we separated from Stefánsson we were halted temporarily by coming to a lead so wide that the ice field on the opposite side could not be seen. A southwest blizzard however, closed the lead and we crossed while the pressure ridge was forming.

The wind at that time attained a velocity of about seventy miles an hour, although it did not affect the grounded shore ice on which we then were camped. Two days later our progress was made difficult by the enormous pressure ridges we encountered. One of these was from twenty to forty-five feet in height, half a mile wide, and extended east and west as far as the eye could reach. While on the trip out we had on one occasion progressed eighteen miles in ten hours. Now on one day we traveled only five hundred yards in ten hours. But we finally reached shore late in the afternoon of April 16, on Canadian soil, about eighty miles east of our starting point.

Whaling captains report the spring of 1914 one of the earliest they have ever known. Open water appeared in the vicinity of Cape Bathurst in March and there is every reason to believe that the same weather conditions prevailed on the west coast of Banks Land. Therefore if Stefánsson tried to reach the island he was undoubtedly prevented by open water.

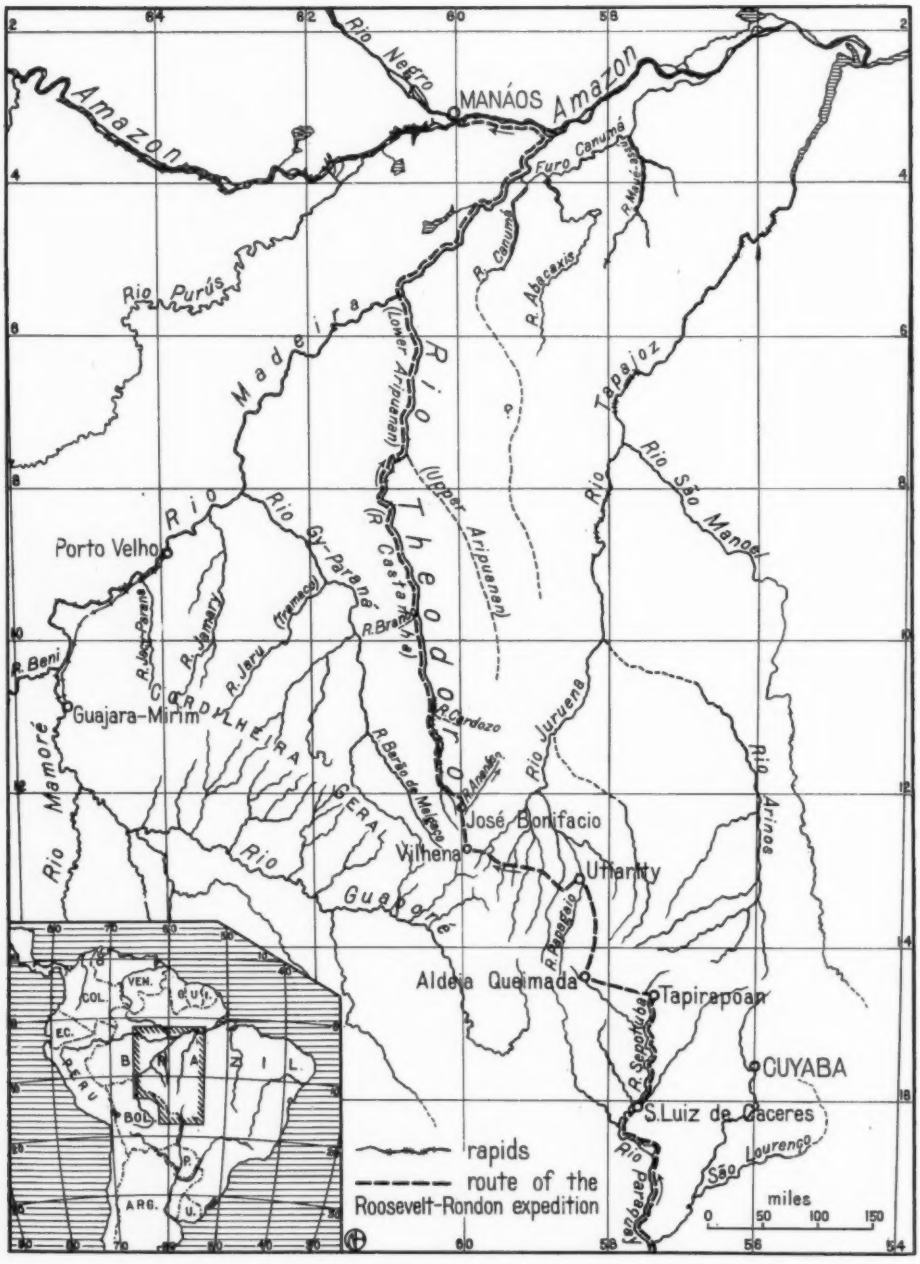
It is possible that he has reached the unknown land he sought and is unable to return because of lack of sufficient food for the journey. But experienced Arctic men agree that the unusually early and rapid westerly drift of the ice must have seriously impeded his progress north and that he is most likely adrift on the ice-pack somewhere in the great open sea between Banks Land and Wrangel Island. Wherever he may be, I firmly believe he is alive and that he could be found by a search expedition.

He and his two companions should have returned to the north coast of the continent in May or June, 1914. When they did not do so — even in July or August, and after two whaling captains had searched the west coast of Banks Land for traces of the party without success, I came out to civilization with the intention of organizing a relief expedition to search for them — and, after I heard that the "Karluk" had sunk, to look also for the eight men who became separated from Captain Bartlett's main party on the retreat over the ice to Wrangel Island.

The plans call for a small power schooner and two to four hydro-aëroplanes with experienced aviators. We would have the machines assembled at Nome and tested before taking them to Wrangel Island. Beginning there and using the ship as a base, we would undertake to search a strip of ice and water one hundred and seventy-five miles long by twenty miles wide daily by having one machine (or better two, one for the relief of the other, if needed) fly at a height of a thousand feet carrying observers equipped with powerful glasses. The machine would proceed one hundred and seventy-five miles in a northwesterly direction, turn at right angles and fly for twenty miles, then turn again and fly back to the ship parallel to its outgoing course. The ship in the meantime would have proceeded twenty miles to the east to meet the incoming machine thus giving the change aviators and the mechanician an opportunity to prepare the second machine for the next day's flight.

Experienced aviators, such as make up the board of governors of the Aëro Club of America, and explorers, including Peary, have approved the plans, and all agree that the work ought to be done.

By such a plan a strip of the Arctic Ocean one hundred and seventy-five miles wide extending from Wrangel Island, Siberia, to Herschel Island, Canada, could be searched in the summer season of 1915 if ordinary weather conditions prevailed.



CENTRAL BRAZIL AND THE NEW RIO THEODORO

Sketch map of the south-central part of the Amazon drainage system, based on the surveys of the Brazilian Telegraphic Commission, showing the course of the Rio Theodoro and the route of the Roosevelt-Rondon expedition. Scale, 175 miles to the inch. The inset shows the location of the main map

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THE GEOGRAPHICAL RESULTS OF THE ROOSEVELT-RONDON EXPEDITION

By W. L. G. Joerg

American Geographical Society

IF we could consult a map — similar to the excellent one of Africa published in the London *Geographical Journal* in 1911 — showing the state of our knowledge, a year ago, of the topography of South America, we would find right in the heart of the continent a blank space as large and as long as Nevada. Across the whole length of this unknown territory lay the route of the Roosevelt-Rondon expedition. Its borders were long well known, although in some cases accurate surveys had not been made until recent years. To the northwest lies the Madeira River, one of the most important highways of the Amazon basin, the authoritative survey of which was carried out in 1878 by an American naval officer, Commander T. O. Selfridge; to the north lies a group of three rivers, the Canumá, Abacaxis and Maué-assú, whose lower courses, which drain into a backwater connecting the Madeira and the Amazon, have been known since Chandless' survey in 1868; to the east flows the Tapajoz, one of the main affluents of the Amazon, long known and in 1895–6 more accurately explored by the French traveler Coudreau; and, finally, to the southwest the unknown area is bounded by the Gy-Paraná, which was properly mapped only in 1907 on one of Colonel Rondon's previous expeditions. These expeditions were undertaken on behalf of the Brazilian government to construct a telegraph line to the rubber settlements on the Madeira and resulted in the exploration of the whole little-known highland region extending from the upper Paraguay to the upper Madeira, together with the drainage systems of both slopes. It was on the occasion of the second of these expeditions, in 1909, that Colonel Rondon came across the headwaters of a river flowing northward. To follow it to its mouth was the object of the 1914 expedition. It might have veered to the left and turned out to be nothing but a source-stream of the Gy-Paraná; or it might have bent eastward and developed into a tributary of the Juruena, one of the sources of the Tapajoz. It did neither. It flowed almost due north and thereby crossed the unknown area from end to end. Therein lies the importance of the discovery.

The new river thus turns out to be the longest known tributary of the Madeira; its length is about 900 miles and it extends over seven degrees of latitude. Its position permits various conjectures as to the hydrography of the region.

To the west, between it and the Gy-Paraná, the interval seems too small to allow a river system of any considerable size to develop; this area is probably drained in opposite directions by their tributaries. A remark in Colonel Roosevelt's book[1] would seem to corroborate this assumption. He tells of hearing of one of the rubber-gatherers who lost his way while working on the Gy-Paraná and, after wandering about for twenty-eight days, finally came out on the Maderainha River, which is a

[1] THROUGH THE BRAZILIAN WILDERNESS. By Theodore Roosevelt. Charles Scribner's Sons, New York, 1914.

small stream joining the new river from the left in about 8½° S. latitude.

On the other hand, to the east of the new river, between it and the Tapajoz, it is quite possible that larger rivers exist. Indeed, Colonel Roosevelt's narrative makes this very likely. In latitude 7° 34′ the new river was joined from the right by a stream of equal size. That this stream extended up at least as far as 8° 48′ had been established shortly before by the Amazonas Boundary Commission, which ascended to this latitude. It did not even seem unlikely that it might be the lower course of a river, named the Ananás, whose headwaters the expedition had crossed before reaching the new river; in which case it would practically have the same length. This problem, we are told, may be solved soon, as one of Colonel Rondon's subordinates was to attempt the descent of the Ananás this year.

The existence of another large river in this area is made plausible by a further reference in Colonel Roosevelt's book. The year previous, he was told, five Indian rubber-gatherers were working on the Canumá in about 9° S. latitude, thus establishing that it extends at least as far south as this. Chandless' survey did not go above 5° 17′, but the size of the river at this point — in contrast with the Abacaxis to the east, which, in 6° 12′, was a very small stream with the boughs of the trees on its banks joining overhead — made it probable that it rose far to the south. This supposition is expressed on various Brazilian maps, where the Canumá is made to drain the whole region between the Madeira and the Tapajoz and thus, indeed, to usurp the area which, it has developed, is tributary to the new river.

The previous references to the activities of the rubber-gatherers in this region may have called up in the reader's mind the question how the expedition can be portrayed as having traversed unknown territory. It is true that the "unknown" river had been ascended for two-thirds of its length by these men on their search for rubber; the expedition came across the first of them in 10° 24′. Indeed, they had a name for it, calling it the Castanha above the confluence with the river joining it in 7° 34′, and the lower Aripuanan below this point; the right affluent entering here they termed the upper Aripuanan, considering it the main stream. On the upper Aripuanan they had ascended to above 9°. But, to use Colonel Roosevelt's words, "the governmental and scientific authorities, native and foreign, remained in complete ignorance"; no map conveyed an inkling of these facts except the location of the confluence of the Aripuanan with the Madeira. The reason is obvious. Pioneers, although often the first in a new region, generally do not bring back information which can be utilized geographically. In our own West many a miner has been the first white man to go up a mountain, valley or to cross a snowy pass; but the world at large knew nothing of the region until the surveyor had been there.

Whenever a region is newly explored, the geographer's first wish is to see an authentic map of it. In the present case he is doomed to some disappointment. Two of the three maps in Colonel Roosevelt's book represent the new river in some detail. One is a sketch map on the scale of 105 miles to an inch showing the river by itself. While based on the astronomical positions given in the text, a certain stiffness of line and the lack of relation to the surrounding regions betoken an ungeographical hand. The other is a general map of Brazil on the scale of 240 miles to the inch prepared by the Brazilian Telegraphic Commission

and forwarded by Lieutenant Lyra, who had charge of the survey of the river. This is far more satisfactory. On it the drainage of the whole region between the upper Paraguay and the Madeira is represented according to the surveys of Colonel Rondon's expedition of 1909; on it, above all, is the first authentic representation of the new river. Here it has the verisimilitude of nature, but it is unfortunately on too small a scale to show much more than a general outline. What the geographer would like is a map such as that published on the scale of sixteen miles to the inch, of an expedition through similar country from the Xingú to the Tapajoz, by the German zoölogist, Miss Snethlage, whom Colonel Roosevelt met in Belem. But this is almost an ideal case; and it would seem proper to expect the desired information rather from the Brazilian party of the expedition, whose aim was primarily geographical, than from the American party, whose aim was primarily zoölogical. Doubtless a satisfactory map will be, or has been, published in Colonel Rondon's official report, but if it is as inaccessible as are the surveys of his previous expeditions, the present material will long have to satisfy our wants.[1]

In discussing Colonel Rondon's previous explorations, Colonel Roosevelt says that they "received no recognition by the geographical societies of Europe or the United States." This is indeed true — although they did not escape the vigilance of the leading German geographical periodical. Inaccessibility of the official reports, even to the specialist, is the main reason. One of the great merits of Colonel Roosevelt's book lies in the fact that he has made us familiar with the highly important work of the Brazilian Telegraphic Commission. The only original map showing the results of these explorations, which diligent search has revealed, appeared in a Rio de Janeiro newspaper, although it seems very probable that the ultimate source goes back to some official report. This delineation, which was reproduced in the German periodical referred to, is incorporated on the accompanying map for the region between the upper Paraguay and the upper Madeira. To this have been added the new river as represented on the map of the Brazilian Telegraphic Commission accompanying Colonel Roosevelt's book and the various features earlier referred to, in an endeavor to present as correct a picture of the region as possible. Reference to any standard map or atlas will show how greatly it differs.

The difficulties which further beset the conscientious interpreter of this important journey are well illustrated by the question of name. As soon as it developed on the expedition that the new river was a major stream and not simply one of the headwaters of the Gy-Paraná or the Juruena, it was formally christened "Rio Roosevelt" by Colonel Rondon on orders received from the Brazilian government before his departure. Subsequently — because of the difficulty of pronunciation for Brazilians, it is understood — Colonel Roosevelt's Christian name was substituted. On two of the maps accompanying his book this name is given as "Rio Téodoro." This is the Spanish form; in Portuguese the name would be Theodoro. Although it is rather presumptuous to question the accuracy of the name used by an explorer to designate the object of his discovery, the

[1] The authentic map of the river has just come to hand, since the above was written. It accompanies the London *Geographical Journal* for February, 1915. It is on the relatively large scale of 6¼ miles to the inch and is reduced from a manuscript map supplied by Colonel Roosevelt, which is based on the surveys made by Lieutenants J. S. Lyra and Pyrineos de Sousa under the direction of Colonel Rondon.— W. L. G. J.

latter form is used on the accompanying map, as it seems the more plausible and the Portuguese names throughout the book are not always correctly rendered.

Besides those relating to the discovery of the new river Colonel Roosevelt's book permits various other deductions of geographical interest. The last rapids were encountered in about latitude 7° 30′ S., just below the mouth of the upper Aripuanan. This point is worthy of note, as the last rapids on the southern tributaries of the Amazon indicate the boundary between two of the major physiographic provinces of South America, the Brazilian Highlands and the Amazon Lowlands. This boundary — similar to the "fall line" between our own Atlantic coastal plain and the Appalachian piedmont region — lies increasingly farther upstream as one proceeds from east to west. Thus, on the Xingú it lies in 3° S.; on the Tocantins, in 4°; on the Tapajoz, in 4½°; on the Maué-assú, in 5°; on the Canumá, probably in 6°; and on the Madeira, in 8⅗° S. Its location in 7½° S. on the Rio Theodoro, between the Canumá and the Madeira, therefore indicates that the even outline of this natural boundary is not here interrupted. The last rapids are also of importance in marking the upper limit of steam navigation — a barrier which, in the case of the Madeira, has been overcome by the construction of a railroad (see map), opened in 1912, which connects with navigable waters on the Mamoré River above.

The contrast between two other natural provinces was very noticeable to the members of the expedition. On the upland plateau of Matto Grosso, which separates the south- and southwest-flowing drainage of the upper Paraguay and the Guaporé from the north- and northeast-flowing drainage of the Madeira and Amazon tributaries, the prevailing type of vegetation is open grassland. To the north lies the jungle of the equatorial forest. The route of the expedition led from the one into the other north of Vilhena in about 12½° S. The former is strikingly pictured in the illustration facing page 174, the latter in the illustrations facing pages 248 and 262 of Colonel Roosevelt's book.

Many other references throughout the book are of geographic interest, such as those on the economic possibilities of the Matto Grosso plateau, on the Parecís and Nhambiquara Indians, and, in the appendices, the pertinent classification of travelers in South America and the comment on the paleogeography of the continent. But above and beyond all this is the record of human achievement. Hardships and dangers there were, even the stern realities of murder and death; but what are these to spirits kindred to that gallant band in the frozen South, over whose grave is so fittingly inscribed, in the words of the grand old rover of the days when the world was young, the eternal longing of the race?

DANIEL GIRAUD ELLIOT

Mammalogist and Ornithologist

Dr. Elliot's personal collection of birds (1869) was the first material of any kind that the American Museum owned, and his purchases and gifts laid the foundation for the great department of mammalogy and ornithology

DANIEL GIRAUD ELLIOT

A BRIEF BIOGRAPHICAL SKETCH ON THE OCCASION OF HIS EIGHTIETH BIRTHDAY TO EMPHASIZE HIS LONG DEVOTION TO SCIENTIFIC WORK AND HIS SERVICES TO THE MUSEUM

THE month of March, 1915, brings the eightieth anniversary of the birth of Daniel Giraud Elliot, the man who with the late Professor Albert S. Bickmore shares the honor of being one of the two scientific founders of the American Museum of Natural History. The original collection of birds belonging to Dr. Elliot was the nucleus of the Museum's later riches and his purchases and gifts laid the foundation of the great department of mammals and birds. Also from the standpoint of knowledge in natural history, he was authority in New York City at the time of the foundation of the Museum, the best-equipped, practically the only man able to give advice in scientific matters relating to the institution. Thus to the trustees of the Museum, men of business who wished to promote science and build up a great educational and scientific institution, Dr. Elliot was an efficient guide. Professor Bickmore conceived the idea of the Museum; he gave his effort to create interest in the plans and to raise funds to carry them out, but he came to Dr. Elliot for advice involving scientific knowledge.

In the winter of 1868–69 when Professor Bickmore had just returned from the Malay Archipelago and the charter for the Museum had lately been given to the body of New York merchants, he especially depended upon Dr. Elliot for advice. He hoped also to obtain Elliot's collection of birds to start the exhibits of the new Museum. The collection consisted of some one thousand specimens, a large number for that early time, covering most of the described species of North America. It had been accumulated during a period of ten to fifteen years, in fact ever since Elliot's early boyhood. This collection at the moment was of considerable concern to Elliot because he was planning to go abroad for an indefinite period of study. No storage building at that time was fireproof and there was also the danger from moths. Therefore when Professor Bickmore suggested that he dispose of the collection to the new Museum, he accepted the plan. This particular collection was the first material of any kind the Museum obtained. It was turned over to J. G. Bell, then the leading taxidermist in New York, and as fast as mounted the birds were put on exhibition in the Arsenal in Central Park, where the Museum had its temporary quarters.

Among the specimens in this collection were five of the Labrador duck.[1]

[1] The following facts were gained from Dr. Elliot regarding the disappearance of the Labrador duck at the time he was a boy:

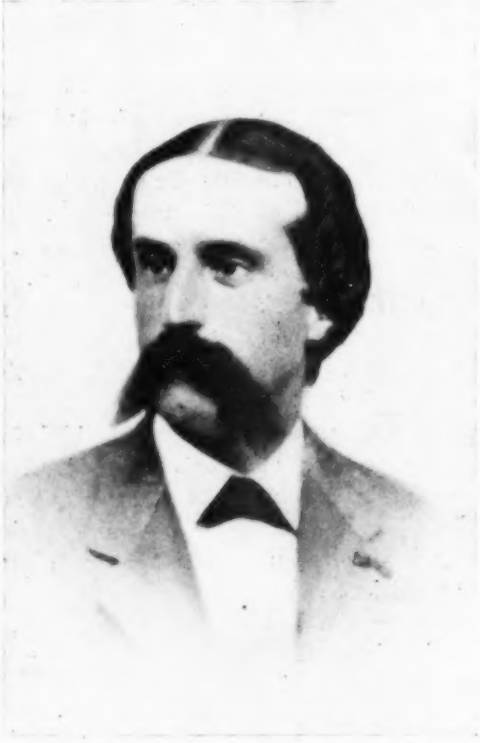
The cause of the extinction of the Labrador duck is a mystery. The bird was a strong flier and a sea duck, having no special enemies that anyone knew of, and in the earliest part of the last century was a very common bird. Imperceptibly its numbers began to grow less, a fact that at first excited very little comment. When Elliot as a boy in continually adding to his bird collection visited the New York markets, especially Washington and Fulton, he would find many Labrador ducks hanging up for sale, sometimes as many as would make a barrel of them. After a few years, he found however, that the full-plumaged males did not appear, that the birds the markets received were mostly females and young males. Then it began to dawn upon those interested that the bird was gradually becoming extinct, and it seemed from that time on to fade rapidly out of existence. The last bird that Dr. Elliot received, a splendidly full-plumaged male which is in the Museum now, was killed on Long Island.

This bird is now wholly extinct with only forty specimens known in all the collections of the world. The American Museum is highly fortunate therefore. Dr. Elliot's five specimens are exhibited in group form, one of the most valuable of the bird groups in the Museum. At the last sale of this bird one specimen brought five thousand dollars.

At the time of the foundation of the American Museum, New York City was practically destitute of any scientific institutions except the Lyceum of Natural History. This was holding its small meetings presided over by Major Delafield, in a room loaned through the courtesy of the College of Physicians and Surgeons at Fourth Avenue and Fourteenth Street, then the northern boundary of the city. There were few natural history associates therefore with whom Elliot could compare notes. The conditions of the time were vividly stated by Dr. Elliot in his address before the Linnæan Society of New York[1] in March, 1914:

I do not suppose my boyhood was different from that of any other lad interested in natural history. I began to make a collection of birds — why I began I have no idea, probably could not help it — and when it verged toward completion I did not know what to do with it, for there was no one of my age anywhere to be found who sympathized with me in my pursuit; I was practically alone.

My cousin, Jacob Giraud, author of the *Birds of Long Island*, had just entered upon the close of his career, and wrote no more. Audubon had entered upon the last years of his life; DeKay had but recently died in Al-



Daniel Giraud Elliot at thirty years of age

[1] The second annual dinner of the Linnæan Society of New York was held March 24, 1914. Dr. Daniel Giraud Elliot of the American Museum of Natural History, veteran ornithologist and mammalogist, was the principal guest, and there was a notable gathering of scientists from all over the East to do him honor. Many of those present either recounted what they owed him personally or testified to his creative ability when ornithology as a science was still in its infancy in this country. Among those who spoke were Professor Henry Fairfield Osborn, president of the American Museum of Natural History, and Dr. F. A. Lucas, director; Dr. Witmer Stone of the Philadelphia Academy of Sciences; Drs. T. S. Palmer and A. J. Fisher of the Biological Survey at Washington; Messrs. Ernest Thompson Seton and Ernest Ingersoll, the well-known writers on animal life. Other prominent scientists present were Dr. Frank M. Chapman, Mr. W. DeW. Miller, Dr. John H. Sage, Dr. Louis B. Bishop, Dr. William T. Hornaday, director of the New York Zoölogical Park, and Dr. C. H. Townsend, director of the New York Aquarium. At the close of the speech-making the Society presented Dr. Elliot with the Linnæan medal of honor, as a testimony of its appreciation of his preëminent position in ornithology and mammalogy. In reply Dr. Elliot spoke of the science of ornithology as it existed sixty years ago at the beginning of his career; touched upon experiences in the past with many members of the Museum staff who were present that evening, and closed with a few words of advice and encouragement to the younger generation, given with that kindliness of spirit which has endeared him to the hearts of those who attempt to follow in his footsteps.— SECRETARY, LINNÆAN SOCIETY OF NEW YORK.

bany; and in all the cities and within the boundaries of our great state, there was but one working ornithologist, George Newbold Lawrence, a man greatly older than myself, whose sons were my friends and companions, but who had not inherited their father's scientific tastes. Lawrence's collections seemed larger and more wonderful to my youthful eyes than any I have since seen in all the museums of the world.

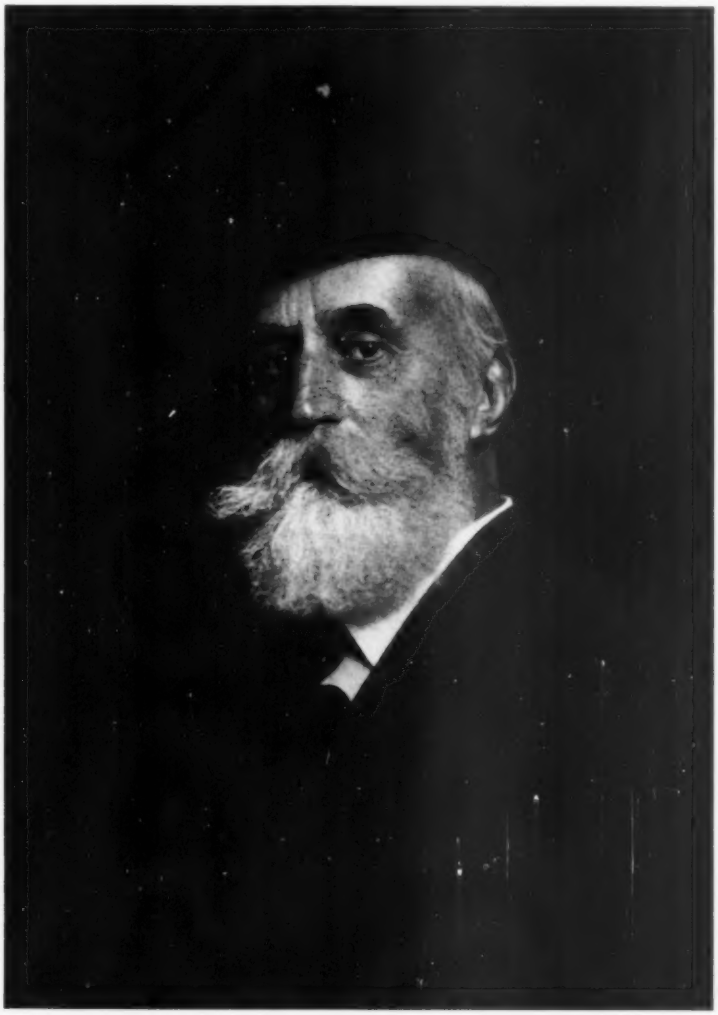
The condition in New York was pretty much repeated in other parts of the country. In Massachusetts there were no ornithologists. Neither Allen nor Brewster had appeared and their predecessor, Brewer, had hardly been heard from. In Washington the work was represented by Baird, who had just come to the Smithsonian Institution. There was no other naturalist in Washington. Gill as a boy had begun his work on fishes, but the young naturalists, Coues and Ridgway had not yet been heard from.

Philadelphia was much better off however. Its ornithology was represented by George Cassin, one of the most erudite and competent ornithologists this country has ever produced and the only one at that time familiar with exotic forms.[1]

The city had its Academy and library donated mainly by Dr. Thomas B. Wilson. Also Leidy was at the height of his career. I used to work a good deal in the old building on the corner of Broad and Sansom streets, my companion often Cope, then starting on his career, his alcoholic snakes and lizards contesting table space with my birds.

In all the length and breadth of the land there was not a periodical devoted to the ways of birds, and it was hard sledging for any young ornithologist. The vast majority of

[1] A few years later through the publication of his Monographs, Elliot was brought into rather intimate relationship with Cassin, owing to the fact that the latter was the head of the firm of Bowen and Company (who served Audubon for so many years).

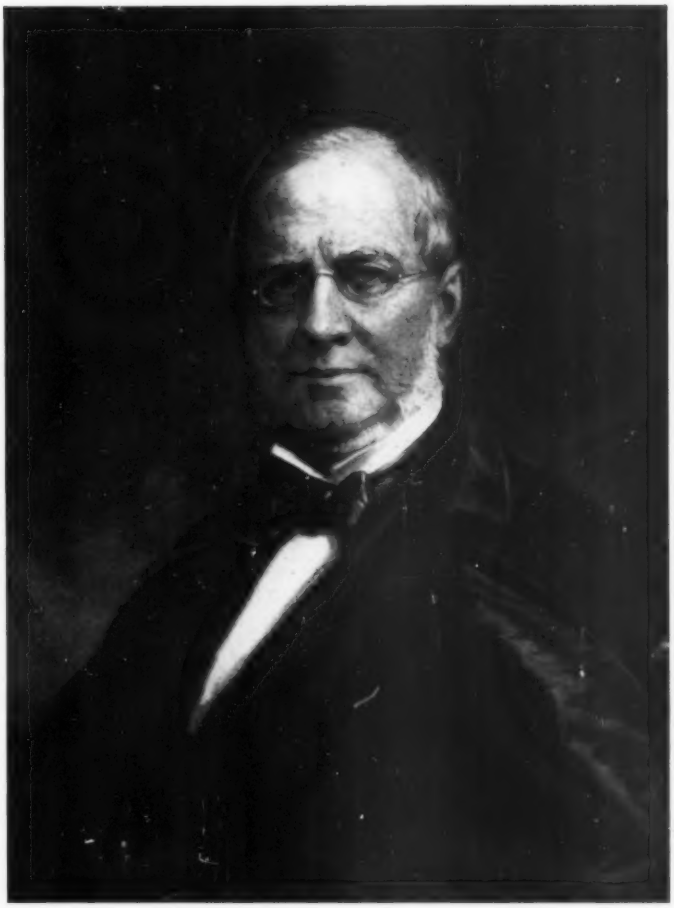


Dr. Elliot in 1897, when curator of zoölogy at Field Museum, Chicago

EXTINCT LABRADOR DUCK

Four birds from a group in the American Museum consisting of specimens from the original collection of Dr. Elliot which came into the possession of the Museum in 1869. The species has been extinct fifty years and there are only forty known specimens in all the museums of the world. The last specimen sold brought a price of five thousand dollars

the books which are our daily companions now and which we keep always within the reach of our hand, had not even been conceived, much less printed. With the exception of that of Lawrence, there was no private collection of birds of any moment in the whole country — of which the Mississippi was the western boundary. It was but the glimmering of the dawn of that glorious day that was to produce the famous company of some of the greatest naturalists the world has ever seen, most of whom had already crossed the river.



Robert L. Stuart — The trustees of the Museum, through Robert L. Stuart, president, gave large commissions to Dr. Elliot for purchases of material in Europe. It was in this way that the Museum gained such valuable possessions as the Verreaux and Maximilian collections

In the summer of 1869 Dr. Elliot went abroad primarily for study but also with a commission from the trustees through Robert L. Stuart, president of the Museum (who had succeeded John David Wolfe, the first president), to purchase for the Museum any material that he thought advisable. Prince Maximilian of Neuwied had lately died and the family desired to dispose of his collections which he had made on his different journeys through South America and the western part of the United States. Dr. Elliot therefore visited Neuwied soon after arriving in Europe, taking a letter of introduction from the Princess Waldeck to the Prince of Wied.[1] He found the collections valuable because in a state

[1] The following interesting reminiscence is quoted from conversation with Dr. Elliot: "I was very cordially received by the Prince, whom I found to be a young man of perhaps twenty-six or twenty-seven, unmarried, living at the time in the Palace in the wood a few miles from the town, with his mother, the Dowager Princess, and his sister Elizabeth.

My stay in Neuwied, which lasted several days, was very pleasant. I met the Princess Elizabeth, then about eighteen years old, afterward so well known as Carmen Sylva. She showed me in the park the places where they went to hear the stags roar during the hunting season. At that time the present King of Rumania, who was Prince Charles of Hohenzollern, had arrived in Europe from Rumania, and it was generally understood that he was on search for a wife. One afternoon when the Princess was walking with me, she spoke of the matter and wondered whom he would take. A day or so afterward the Prince, a very pleasant,

of excellent preservation, and containing the principal types of both the mammals and birds which the Prince had described. He therefore made the purchase and had the collection sent to the Museum.

Another purchase was selected from the Verreaux Collection in Paris. The Messrs. Verreaux in the Place Royale in Paris had for many years been recognized as the largest dealers in natural history objects then in Europe and their collection of mammals and birds, shells and other material represented specimens from all over the world. Dr. Elliot spent several months studying the collections and as rapidly as he selected birds or mammals, they were mounted by Verreaux and shipped to New York until several thousand specimens had been obtained.

Still a third collection which though very much smaller than the Maximilian or Verreaux, yet afforded some very valuable specimens, was that of Mme. Verdray. From her he got many rare specimens, as the collection was not a general one but consisted more particularly of species which were rare and difficult to procure.

He also obtained valuable specimens from Frank of Amsterdam, a dealer on a considerable scale who obtained material from the Eastern Archipelago, his Dutch connections giving him greater facilities for such enterprise than had any other person in the trade.

It was in the Museum of Messrs. Verreaux in Paris that a group[1] composed of an Arab on a camel attacked by two lions was purchased — not by Dr. Elliot however who preferred to put the 20,000 francs to a purpose more valuable to technical science, but by one of the trustees from New York who was visiting him.

Besides these larger collections Dr. Elliot was able to pick up valuable single specimens from time to time during his stay in Europe. He one day chanced to find in a taxidermist's window in London a specimen of a great auk in winter plumage, which he purchased for one hundred and five pounds.[2]

It was on one of the rare visits that Dr. Elliot made to New York during his stay in Europe that he succeeded in obtaining still further valuable bird material for the Museum. This had belonged to his friend, Dr. A. L. Heerman, had been collected in the western and southwestern portions of the United States, and kept in unusually perfect condition. The collection was bought by Dr. Elliot and presented by him to the Museum. Added to his own one thousand birds which the Museum had gained possession of several years before, it brought the American Museum's collections as regards the birds of North America to a state unsurpassed in numbers and importance by any other collection of the time, unless perhaps by that of the National Museum at Washington.

On his final return in the early eighties

frank personage, arrived in Neuwied, and I with the many others was a guest at the grand dinner given in his honor at the Palace in the wood. It was during that visit that he became engaged to Princess Elizabeth.

[1] The group was done fairly well and had received the gold medal at one of the great expositions. The animals and the man's face too were strikingly well done — for the time. This group stood in the hall of the Arsenal and afterward in less and less conspicuous positions in the new building in Manhattan Square but has considerable value to-day from the historical standpoint. It is now in the possession of the Carnegie Museum, Pittsburg.

[2] This specimen has a prominent place to-day in the bird collection on the second floor of the Museum. The label announces that it is the gift of Robert L. Stuart, which reminds us of the fact that when the great auk shipped by Dr. Elliot arrived in New York, it was paid for by the personal check of Mr. Stuart, then president of the Museum.

after a sojourn abroad of nearly ten years, he brought with him a large collection of humming birds, made during his stay in Europe. At that time it was probably the most complete in the world. He had had the great good fortune to be present when large collections of humming birds, like the Boucier, Mulsant and others, had been broken up and sold, and had therefore fortunately been able to make selections from them all, gaining many rare species and a number of types.

In 1887 when moving from New Brighton, Staten Island, where he had made his home since his return from Europe, he gave this collection to the Museum in the case that he had had made for it. At about the same time the Museum gained Dr. Elliot's books, a very full working library for ornithologists, practically complete for the time with the exception of the serial publications.

Dr. Elliot has traveled in connection with his work more than have most naturalists. He visited the West Indian Islands when scarcely out of boyhood and also the southern portion of the United States, his curiosity and his desire to study and collect specimens greatly excited by the strange birds and mammals that he saw. In 1857 more than ten years before the founding of the American Museum, he went to Rio de Janeiro and did some study and collecting in Brazil. Immediately after, he went to Europe, of course with his interests as ornithologist and sportsman uppermost, passed from Malta to Sicily and on to Egypt, giving a few months to a trip up the Nile, shooting and preparing specimens. He returned to Cairo, formed a party and with camels crossed the long desert to Palestine. On reaching the eastern side of the Sinaitic Peninsula, he journeyed to the land of Moab visiting the ancient city of Petra (capital of Esau's kingdom), also going to Bethlehem and Jerusalem and on into Palestine as far as Damascus, crossing the Lebanon Mountains at an altitude of ten thousand feet, and returning to Europe from Beirut.

Later in life he made two zoölogical trips to Alaska, once as a member of the Harriman Expedition, the researches of which in many volumes are still in the course of publication.

In 1896 he was commissioned by the Field Museum of Natural History in Chicago [he had gone there in 1894 as head of the department of zoölogy] to lead an expedition into Africa to get specimens for the institution. He spent a year in passing through Somaliland and Ogaden and was on his way to the Boran country when he was prevented by illness from carrying on the work. This expedition was highly successful in obtaining specimens of the African species of quadrupeds many of which are on exhibition in the Field Museum to-day. Also somewhat later he led an expedition for the Field Museum into the Olympic Mountains.

He has spent eighteen months in an around-the-world journey since 1906 when he began the preparation of his recently published *Review of the Primates*. He had not progressed very far in the preparation for this work when he realized how impossible it was to do much on the subject in the United States since representatives of the Primates from either the Eastern or Western Hemispheres are very few in American museums. He therefore sailed for Europe in April 1907 and did not return until 1909. During this time he visited place after place, studying the types of lemurs and monkeys both in museums and zoölogical gardens. After working in one after another of the large Euro-

pean museums, he went to Egypt, went up the Nile to the second cataract and then directed his course to India. He studied monkeys of various species there, still other species in Ceylon, and then went over from Calcutta to Rangoon and passed through Burma, going as far north as Mandalay, the old capital on the Irawadi River. Returning to Rangoon he passed over to the Straits Settlements and visited the museums and zoölogical gardens there. He went from Singapore to Java and stopped at Batavia for some time. Returning to Singapore he moved to Hong Kong, passed up the river to Canton, and then returning went to Shanghai. Then he journeyed eight hundred miles up the Yang-tse-kiang River to Hankow, and from there crossed through the heart of China, to Peking, to Tien-tsin, and back by sea to Shanghai. From China he went to Japan, passing through the Inland Sea and landing at Kobe; then to Kioto, where he remained a considerable time because exceedingly interested in the zoölogical gardens and in the wild monkeys which inhabited the forests all around the city. He visited the places in Japan likely to further his researches, and then started for home. On his way to San Francisco he visited a number of the islands of the Honolulu group, among them the one on which is Mauna Loa, the smaller volcano at the foot of Mauna Loa being in action at the time of his visit.

After reaching the United States, Dr. Elliot came at once to the American Museum to devote himself to the research in hand. Somewhat later he went again to Europe — to London, Paris Leiden, Berlin, Dresden, Vienna and Munich, to do certain comparative study still necessary. Comparative data on Primates was difficult to obtain. For more than a century they have been a subject for study by naturalists in many countries and thus the types are to be found in all corners of the earth — wherever scientific research has been done. Since the material is so greatly scattered, it could seldom be brought side by side for comparison of characteristics. Thus the monograph proved to be an immense labor — which was conscientiously accomplished. The work now finished is an elaborate treatment, in three quarto volumes, of the lemurs and monkeys of the Old and New Worlds, as well as of the anthropoid apes. It was published as a monograph [1] of the American Museum.

Dr. Elliot is the author of many volumes [2] besides the recent *Review of*

[1] The series of illustrations in Dr. Elliot's monograph (from photographs by A. E. Anderson) both in fidelity to nature and artistic treatment of half tones, are of an excellence never before reached in works on osteology or craniology. As reviewers have said, "....by means of more than one hundred photographic plates of skulls, giving lateral, frontal, ventral and dorsal views, the close student of the monkeys has all the world's types, as it were, brought to him. The value of these plates cannot be overestimated, and the work would be a notable one were it merely a portfolio of them."

[2] The following is a list of some of the important publications of Dr. Elliot:

A Monograph of the Tetraoninæ, or Family of the Grouse. 27 pls. col., with descriptive letterpress. fol. New York, 1864–1865.

A Monograph of the Pittidæ, or Family of the Ant Thrushes. 31 pls. col., with descriptive letterpress. fol. New York, 1867. (Second edition, pp. xxiii, 1 tab., 51 pls. col., with descriptive letterpress. London, 1893–95.)

The New and Heretofore Unfigured Species of the Birds of North America. 2 vol. illust. col. fol. New York, 1869.

A Monograph of the Phasianidæ, or Family of the Pheasants. 2 vols. illust. col. fol. New York, 1872.

A Monograph of the Paradiseidæ, or Birds of Paradise. 37 pls. col., with descriptive letterpress. fol. London, 1873.

A Monograph of the Bucerotidae, or Family of the Hornbills. 59 pls. col., with descriptive letterpress. fol. London, 1876–82.

A Classification and Synopsis of the Trochilidæ. pp. xii, 277. text illust. (Smithsonian Contributions to Knowledge) 4°. Washington, 1879.

A Monograph of the Felidæ, or Family of the Cats. 43 pls. col., with descriptive letterpress. fol. London, 1883.

Primates and in addition to hundreds of papers published in scientific journals here and abroad. Some of his books such as *North American Shore Birds* and *The Wild Fowl of the United States and British Possessions* have had some educational influence in bringing about the popular interest in birds that exists in this decade in America. These books are wholly untechnical in character, and were designed largely for sportsmen and bird lovers.

Dr. Elliot stood as an expert adviser for the Museum in its early days. The American Museum would not forget that time or that obligation. In giving him congratulations and heartfelt wishes at this anniversary, we would go back with him to the young days as he recalls the joy of his early collections, the joy of the travel and the work, the joy throughout the years of continued learning and discovery, the joy too of feeling himself a very palpable support to the Museum during the days of its greatest need, before it had even a home of its own. He said at the Linnæan Society dinner two years ago: "As I look around upon this assembly and see so many naturalists gathered here, I am instinctively carried back into the long ago when New York and the Museum and I were young. There is no one here who remembers that time — for I am the sole survivor of those days."

The American Museum of to-day gives him greeting with grateful recognition and appreciation of those days. From all departments the institution extends to Daniel Giraud Elliot the welcome of fellowship in scientific endeavor — whenever to-day he walks through her galleries and laboratories, viewing their present gigantic proportions, seeing also the promised growth of the next few years, and through the eyes of memory living again the institution's early days of which he was so intimately a factor and a guiding influence.

North American Shore Birds: A History of the Snipes, Sandpipers, Plovers and their Allies. pp. xvi, 268. 74 pls. text illust. 8°. New York, 1895.

The Gallinaceous Game Birds of North America. pp. 220. 46 pls. and color chart. 8°. London, 1897.

The Wild Fowl of the United States and British Possessions, or the Swans, Geese, Ducks and Mergansers of North America. pp. xxii, 316. 63 pls. 8°. New York, 1898.

Synopsis of the Mammals of North America and the Adjacent Seas. Field Col. Museum Publ. 1901.

The Land and Sea Mammals of Middle America and the West Indies. 2 vols. Field Col. Museum Publ. 1904.

A Check List of the Mammals of the North American Continent, the West Indies and the Neighboring Seas. Field Col. Museum Publ. 1905.

A Catalogue of the Collection of Mammals in the Field Columbian Museum. 1907.

A Review of the Primates. 3 vols. 11 color pls. 32 pls. American Museum of Natural History, 1913.

The Life and Habits of Wild Animals. [In collaboration with J. Wolf]. 4°. 1874.

MUSEUM NOTES

SINCE the last issue of the JOURNAL the following persons have become members of the Museum:

Associate Founder, MR. J. P. MORGAN;

Associate Benefactor, MR. THOMAS DE WITT CUYLER;

Patron, MR. GEORGE F. BAKER;

Life Members, MRS. JAMES M. LAWTON, MISS EDITH W. TIEMANN, MASTER HENRY S. REDMOND, and MESSRS. EDWARD W. C. ARNOLD, MAX WM. STÖHR, JAMES STREAT and FREDERIC DELANO WEEKES;

Sustaining Member, MR. J. KENNEDY TOD;

Annual Members, MRS. FRITZ ACHELIS, MRS. GEORGE PERCIVAL COOLIDGE, MRS. M. E. DWIGHT, MRS. M. C. ESCHWEGE, MRS. CLIFFORD HARMON, MRS. CHARLES M. MUCHNIC, MRS. ROLAND REDMOND, MRS. FRANKLYN B. SANDERS, MRS. C. F. SWAN, MRS. CHARLES B. TOWNS, MISSES E. H. DAVISON, NATHALIE F. LOW, DR. ADELAIDE MILLS, DR. W. G. ECKSTEIN, DR. BERNARD SACHS, MASTER WILLIAM T. BLODGETT, 3d, MASTER HOWARD G. CUSHING, JR., MASTER RALPH STOWELL ROUNDS, JR., and MESSRS. CHARLES B. COLEBROOK, C. B. DAVISON, W. H. ELLIS, SOL. FULD, THOMAS FRANCIS FOX, FREDERICK FRELINGHUYSEN, RICHARD H. GOSMAN, ALEXANDER HAMILTON, F. J. HUNTINGTON, FRANCIS DEMILT JACKSON, EDGAR A. LEVY, ALPHONS LEWIS, HORACE R. MOORHEAD, A. W. PARKER, FREDERICK H. PATTERSON, ALFRED L. SIMON, LEO L. SIMON, EDWIN H. STERN, MOSES J. STROOCK and MALCOLM HERRICK TALLMAN.

A FORMAL word of greeting and appreciation was extended by the trustees and members of the staff of the American Museum to Dr. Daniel Giraud Elliot on the occasion of the eightieth anniversary of his birth, March 7, 1835.

THE recent Indian disturbances in eastern Utah and adjoining territory are of interest to the Museum, since the department of anthropology is engaged in an extensive and intensive survey of all the Shoshonean Plateau tribes. In the newspaper accounts the Paiute are made to figure as the trouble-makers. From the geographical data at hand it appears that they are not identical with the tribe so designated by ethnologists, since both the Northern and Southern Paiute, using accepted scientific terminology, live well to the west of the area in question, which does form the home of the Southern Ute. One band of this tribe is called Paiyutsi by the others, and this is apparently the one that has come into conflict with local authorities.

THE recent acquisition of a bust of John Burroughs together with a marble pedestal designed to harmonize with the bust was made possible to the Museum through the generosity of Mr. Henry Ford. This interesting piece of sculpture was shown at the last exhibit of the National Academy of Design. The sculptor is Mr. C. S. Pietro.

THE annual meeting of the board of trustees of the American Museum of Natural History was held at the residence of President Henry Fairfield Osborn, on Monday evening, February first. The trustees were the guests of President Osborn at dinner.

AT the annual meeting of the board of trustees the following trustees were reëlected in the class of 1919: George F. Baker, Henry Fairfield Osborn, Joseph H. Choate, James Douglas and George W. Wickersham. The following officers were also reëlected: president, Henry Fairfield Osborn; first vice-president, Cleveland H. Dodge; second vice-president, J. P. Morgan; treasurer, Charles Lanier; secretary, Adrian Iselin.

THE department of education has arranged to extend its courses of lectures for school children by having certain of the lectures which are given at the Museum repeated in three local centers,— namely, the Washington Irving High School, Public School 64 on the lower East side and a school to be selected in the Bronx. This plan will benefit many pupils who cannot afford the necessary car-fare to the Museum.

AT the annual meeting of the board of trustees the following elections of members were made in recognition of generous contributions and genuine interest in the growth of the Museum: J. P. Morgan, associate founder; Thomas DeWitt Cuyler, associate benefactor; George F. Baker, patron.

FINANCED by a committee of friends of the Museum interested in the paintings of Mr. E. W. Deming, the work on the series of

murals for the Plains Indian hall will begin at once. The series will include eight panels. Added to his many years spent in study of the Indian and in recording Indian life, Mr. Deming made new studies for the work last summer, especially among the Blackfoot Indians of Glacier National Park. [A portrait of Mr. Deming is shown on page 91.]

As a number of its *Anthropological Series*, the Museum will soon publish a paper by Mr. M. D. C. Crawford on prehistoric Peruvian fabrics. Mr. Crawford's familiarity with all the materials, implements, machinery and processes of present day weaving has enabled him to analyze and describe the processes by which these cloths were made.

The Museum's collections from the ancient graves of Peru contain the cotton and wool in all stages from the raw state to the finished yarns, and contain also looms with cloth in process of manufacture. The fabrics besides being some of the most beautiful ever woven have always excited the wonder and admiration of those who know anything about weaving by their technical qualities. It is difficult to understand how a primitive people, with the simple tools at their command, could have produced cloth technically better than can be made by the wonderful looms of to-day. In some of the fabrics the cotton thread has three times as many turns to the inch as the best cotton thread commonly used in our mills, and the twist is remarkable for its evenness. Some have a warp of forty-two fine cotton threads to the inch, crossed by two hundred and eighty-two ply woolen threads to the inch. This weft had been beaten so compactly that the instrument used in mills to count the number of threads to the inch is useless, and the cloth has to be fastened down firmly and the threads drawn out, one at a time, with a hooked needle point, under a magnifying glass, the counting of an inch taking three and a half hours.

Some twelve hundred specimens of archæological and ethnological material from various parts of the world have been deposited by the Museum at Barnard College, Columbia University, to be used as a study collection by its students of anthropology.

Attention may be called to the fur-seal group just opened to the public in the North American mammal hall, adjoining the recently constructed beaver group. The background, which is remarkable for its illusion of distance, was painted by Mr. Albert Operti. It shows a part of Kitovi rookery at the Pribilof Islands.

From recent cable advices we learn that James Chapin with about one-fourth of the collections of the Congo expedition left Boma on the western coast of Africa January 31. He is expected to arrive in New York the latter part of March.

The exhibits in the Jesup North Pacific Indian hall are being rearranged and the cases repainted to produce a more harmonious color scheme.

The opening lecture of the fifth series of the Museum's "Science Stories" for the children of members was given on Saturday morning, February 20, by Admiral Robert E. Peary. His subject, "Children of Ice and Snow," proved of great charm and he graciously repeated the lecture and showed the Arctic pictures a second time, to the overflow audience of children who waited.

Mrs. William H. Bliss of New York has enriched the Museum's gem collection with a very beautiful blue aquamarine, weighing 144.51 carats. It is a Brazilian stone from Minas Geraes, cut in an oblong brilliant, and easily exceeds in color beauty and size any of the aquamarines previously brought from that locality.

The photograph reproduced in sepia opposite page 102 of this Journal, is a copy of one of two new mural canvases by Mr. Will S. Taylor. It represents Indians of the Tlingit tribe engaged in a shamanistic ceremony for curing the sick, and was recently put in place on the east side of the North Pacific hall. Any reproduction of this picture not in color is unfortunate, since in the color lies a considerable part of its power. The scene is an interior with steps leading down into a room like a pit. Weird figures in dim light sway to the chanting of voices and the beat of a drum, while in the circle of firelight, the shaman in ceremonial dress, his hair adorned with clipped eagle down, dances about the man to be cured. The second new canvas represents Haida Indians in a house-building ceremony. [A portrait of Mr. Taylor is given on page 90.]

THE spring members' course of popular lectures at the Museum was opened on the evening of March 4 by Dr. Wilfred H. Osgood in a presentation of the subject, the "Fur Seals and Other Animals of the Pribilof Islands."

A THIRTY-PAGE pamphlet, the *Report on the Street Trees of New York City* published by the Tree Planting Association of New York City in coöperation with the New York State College of Forestry at Syracuse University may be secured without cost at the sales desk on the first floor of the Museum. This report by Mr. H. R. Francis gives the results of the survey of the trees of the several boroughs of New York City made by him during the summer of 1914, and offers suggestions for an organized system of scientific tree culture especially adapted to New York City.

THERE has recently been installed in the Darwin hall an exhibit of the Galapagos finches of the genus *Geospiza* to illustrate geographical variation as a result of isolation. The Galapagos Islands, made classic through the observations and researches of Darwin, furnish many types of animal life which are not found in other parts of the world, although in most cases they bear resemblance to the corresponding fauna of the mainland of South America. Each island of the archipelago is the home of a species or variety not found elsewhere. While these forms are often distinct from those of neighboring islands, they differ widely from those of the mainland. A map of the islands is shown in the exhibit together with specimens of the various species mounted in such a way as to indicate their geographic distribution on the archipelago. As the degree in which they differ is doubtless correlated with the length of time during which the islands have been separated, a relief map of the archipelago showing the deepening of the channel of the surrounding waters is introduced to further emphasize this correlation.

THE latest addition to the exhibits in the hall of public health is a group showing the enemies of the fly. The setting is a section of a stable with its stable yard, a corn field and orchard showing in the distance. The most important enemies are shown in characteristic activities. A hen is busily engaged in picking up fly larvæ; a toad is waiting under burdock leaves for a fly to appear; swallows are skimming over the yard, catching flies on the wing; wasps are abroad on a similar quest; while in dusty corners of the stable and on the broken window are waiting spiders and centipedes, and waiting bats hang suspended from the beams.

ANOTHER shipment of birdskins, including seven hundred and four specimens collected by Mr. W. B. Richardson in eastern Panama, has been received by the Museum.

MR. FRANK M. BYERLY, who exhibited before the faculty of the Museum in January a long series of autochrome plates in stereopticon views of unusual beauty, will give a lecture to members of the Museum on the evening of March 25.

MR. H. E. ANTHONY has recently been appointed assistant in the department of mammalogy.

DR. DAVID G. STEAD, Commissioner of Fisheries of New South Wales, recently visited the Museum. He is returning to Australia from an investigation of the fisheries of England during the past few months, and expects to visit the United States government fish hatcheries at Woods Hole, Massachusetts, and several other points before sailing for home.

A GENERAL meeting of the New York Academy of Sciences and its Affiliated Societies is to be held at the Museum Monday, March 22. Professor Raymond Dodge of Columbia University will lecture on the "Incidence of the Effect of Moderate Doses of Alcohol on the Nervous System."

THROUGH the courtesy of Dr. Emilie Snethlage the Museum is to receive from time to time collections of birds and mammals from the Museu Goeldi, Pará, Brazil. The first shipment contains six hundred and four birds and fifty mammals and includes several species new to our collections, one of them the wonderful opal-crowned manikin, *Pipra opalizans*, pronounced by Count von Berlepsch to be the "finest bird in the world".

MR. FRANCIS HARPER has been working recently at the Museum, in the preparation of a paper on fish material which he collected on the expedition sent out in 1914 under the Canadian Geological Survey to Great Slave Lake.

The American Museum of Natural History

Seventy-seventh Street and Central Park West, New York City

Open free to the public on every day in the year.

The American Museum of Natural History was established in 1869 to promote the Natural Sciences and to diffuse a general knowledge of them among the people. It is dependent upon private subscriptions and the fees from members for procuring needed additions to the collections and for carrying on explorations in America and other parts of the world. The membership fees are,

Annual Members	$ 10	Patrons	$1,000
Sustaining Members (annually)	25	Associate Benefactors	10,000
Life Members	100	Associate Founders	25,000
Fellows	500	Benefactors	50,000

Guides for Study of Exhibits are provided on request to members and teachers by the department of public education. Teachers wishing to bring classes should write or telephone the department for an appointment, specifying the collection to be studied. Lectures to classes may also be arranged for. In all cases the best results are obtained with small groups of children.

The Museum Library contains more than 60,000 volumes with a good working collection of publications issued by scientific institutions and societies in this country and abroad. The library is open to the public for reference daily — Sundays and holidays excepted — from 9 A. M. to 5 P. M.

The Technical Publications of the Museum comprise the *Memoirs*, *Bulletin* and *Anthropological Papers*, the *Memoirs* and *Bulletin* edited by J. A. Allen, the *Anthropological Papers* by Clark Wissler. These publications cover the field and laboratory researches of the institution.

The Popular Publications of the Museum comprise the JOURNAL, edited by Mary Cynthia Dickerson, the *Handbooks*, *Leaflets* and *General Guide*. The following list gives some of the popular publications; complete lists, of both technical and popular publications, may be obtained from the Librarian.

POPULAR PUBLICATIONS

HANDBOOKS

NORTH AMERICAN INDIANS OF THE PLAINS. By Clark Wissler, Ph.D. *Paper*, 25 *cents; cloth*, 50 *cents.*

INDIANS OF THE SOUTHWEST. By Pliny Earle Goddard, Ph.D. *Paper*, 25 *cents; cloth*, 50 *cents.*

ANIMALS OF THE PAST. By Frederic A. Lucas, Sc.D. *Paper*, 35 *cents.*

ILLUSTRATED GUIDE LEAFLETS

GENERAL GUIDE TO THE COLLECTIONS. New edition issued December, 1914. *Price*, 25 *cents.*

THE COLLECTION OF MINERALS. By Louis P. Gratacap, A.M. *Price*, 5 *cents.*

NORTH AMERICAN RUMINANTS. By J. A. Allen, Ph.D. *Price*, 10 *cents.*

THE ANCIENT BASKET MAKERS OF SOUTHEASTERN UTAH. By George H. Pepper. *Price*, 10 *cents.*

PRIMITIVE ART. *Price*, 15 *cents.*

THE BIRDS OF THE VICINITY OF NEW YORK CITY. By Frank M. Chapman, Sc.D. *Price*, 15 *cents.*

PERUVIAN MUMMIES. By Charles W. Mead. *Price*, 10 *cents.*

THE METEORITES IN THE FOYER OF THE AMERICAN MUSEUM OF NATURAL HISTORY. By Edmund Otis Hovey, Ph.D. *Price*, 10 *cents.*

THE HABITAT GROUPS OF NORTH AMERICAN BIRDS. By Frank M. Chapman, Sc.D. *Price*, 15 *cents.*

THE INDIANS OF MANHATTAN ISLAND AND VICINITY. By Alanson Skinner. *In preparation.*

THE STOKES PAINTINGS REPRESENTING GREENLAND ESKIMO. *Price*, 5 *cents.*

BRIEF HISTORY OF ANTARCTIC EXPLORATION. *Price*, 10 *cents.*

TREES AND FORESTRY. By Mary Cynthia Dickerson, B.S. *A new edition in course of preparation.*

THE PROTECTION OF RIVER AND HARBOR WATERS FROM MUNICIPAL WASTES. By Charles-Edward Amory Winslow, M.S. *Price*, 10 *cents.*

PLANT FORMS IN WAX. By E. C. B. Fassett. *Price*, 10 *cents.*

THE EVOLUTION OF THE HORSE. By W. D. Matthew, Ph.D. *Price*, 20 *cents.*

REPRINTS

THE GROUND SLOTH GROUP. By W. D. Matthew, Ph.D. *Price*, 5 *cents.*

METHODS AND RESULTS IN HERPETOLOGY. By Mary Cynthia Dickerson, B.S. *Price*, 5 *cents.*

THE WHARF PILE GROUP. By Roy W. Miner, A.B. *Price*, 5 *cents.*

THE SEA WORM GROUP. By Roy W. Miner, A.B. *Price*, 10 *cents.*

THE ANCESTRY OF THE EDENTATES. By W. D. Matthew, Ph.D. *Price*, 5 *cents.*

"Moses" was captured in the early days on the Paraguay and traveled thereafter with the Roosevelt expedition. He crooned and chuckled whenever taken from his basket to be fed and petted, and he was often an interested spectator during the packing of specimens for the Museum